

## Sequence Listing

<110> Desnoyers,Luc

Eaton,Dan L.

Goddard,Audrey

Godowski,Paul J.

Gurney,Austin L.

Pan,James

Stewart,Timothy A.

Watanabe,Colin K.

Wood,William I.

Zhang,Zemin

<120> SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC  
ACIDS ENCODING THE SAME

<130> P3030R1C5

<150> 60/085579

<151> 1998-05-15

<150> 60/112514

<151> 1998-12-15

<150> 60/113300

<151> 1998-12-22

<150> 60/113430

<151> 1998-12-23

<150> 60/113605

<151> 1998-12-23

<150> 60/113621

<151> 1998-12-23

<150> 60/114140

<151> 1998-12-23

<150> 60/115552

<151> 1999-01-12

<150> 60/116843

<151> 1999-01-22

<151> 1999-04-05

<150> 60/129122

<151> 1999-04-13

<150> 60/130359

<151> 1999-04-21

<150> 60/131270

<151> 1999-04-27

<150> 60/131272

<151> 1999-04-27

<150> 60/131291

<151> 1999-04-27

<150> 60/132371

<151> 1999-05-04

<150> 60/132379

<151> 1999-05-04

<150> 60/132383

<151> 1999-05-04

<150> 60/135750

<151> 1999-05-25

<150> 60/138166

<151> 1999-06-08

<150> 60/144791

<151> 1999-07-20

<150> 60/146970

<151> 1999-08-03

<150> 60/162506

<151> 1999-10-29

<150> 09/311832

<151> 1999-05-14

<150> 09/380142

<151> 1999-08-25

<150> 09/644848

<151> 2000-08-22

<150> 09/747259

<151> 2000-12-20

<150> 09/816744

<151> 2001-03-22

<150> 09/854208

<151> 2001-05-10

<150> 09/854280  
<151> 2001-05-10  
  
<150> 09/874503  
<151> 2001-06-05  
  
<150> 09/869599  
<151> 2001-06-29  
  
<150> 09/908,827  
<151> 2001-07-18  
  
<150> PCT/US99/10733  
<151> 1999-05-14  
  
<150> PCT/US99/28551  
<151> 1999-12-02  
  
<150> PCT/US99/30720  
<151> 1999-12-22  
  
<150> PCT/US00/05601  
<151> 2000-03-01  
  
<150> PCT/US00/05841  
<151> 2000-03-02  
  
<150> PCT/US00/14042  
<151> 2000-05-22  
  
<150> PCT/US00/15264  
<151> 2000-06-02  
  
<150> PCT/US00/23522  
<151> 2000-08-23  
  
<150> PCT/US00/23328  
<151> 2000-08-24  
  
<150> PCT/US00/32678  
<151> 2000-12-01  
  
<150> PCT/US00/34956  
<151> 2000-12-20  
  
<150> PCT/US01/06520  
<151> 2001-02-28  
  
<150> PCT/US01/17800  
<151> 2001-06-01  
  
<150> PCT/US01/19692  
<151> 2001-06-20  
  
<150> PCT/US01/21066  
<151> 2001-06-29  
  
<150> PCT/US01/21735

<151> 2001-07-09

<160> 80

<210> 1

<211> 1712

<212> DNA

<213> Homo Sapien

<400> 1

ggcatctgcc cgaggagacc acgctcctgg agctctgctg tcttctcagg 50  
gagactctga ggctctgttg agaatcatgc tttggaggca gctcatctat 100  
tggcaactgc tggctttggt tttcctccct ttttgccctgt gtcaagatga 150  
atacatggag tctccacaaa ccggaggact acccccagac tgcagtaagt 200  
gttgatcatgg agactacagc tttcgaggct accaaggccc ccctgggcca 250  
ccggggccctc ctggcattcc aggaaccat ggaacaatg gcaacaatgg 300  
agccactggt catgaaggag ccaaagggtga gaaggcgac aaagggtgacc 350  
tgggggcctcg aggggagcgg gggcagcatg gcccacaaagg agagaagggc 400  
taccgggga ttccaccaga acttcagatt gcattcatgg cttctctggc 450  
aaccacttc agcaatcaga acagtgggat tatcttcagc agtggtgaga 500  
ccaacattgg aaacttcttt gatgtcatga ctggtagatt tggggcccca 550  
gtatcaggtg tgtatttctt caccttcagc atgatgaagc atgaggatgt 600  
tgaggaagtg tatgtgtacc ttatgcacaa tggcaacaca gtcttcagca 650  
tgtacagcta tgaaatgaag ggcaaatacag atacatccag caatcatgct 700  
gtgctgaagc tagccaaagg ggatgagggt tggctgcgaa tgggcaatgg 750  
cgctctccat ggggaccacc aacgcttctc cacctttgca ggattcctgc 800  
tctttgaaac taagtaaata tatgactaga atagctccac tttggggaag 850  
acttgtagct gagctgattt gttacgatct gaggaacatt aaagttgagg 900  
gttttacatt gctgtattca aaaaattatt ggttgcaatg ttgttcacgc 950  
tacaggtaca ccaataatgt tggacaattc aggggctcag aagaatcaac 1000  
cacaaaatag tcttctcaga tgaccttgac taatatactc agcatcttta 1050  
tcaactcttc cttggcacct aaaagataat tctcctctga cgcagggttg 1100  
aatatTTTTT ttctatcaca gaagtcattt gcaaagaatt ttgactactc 1150  
tgcttttaat ttaataccag ttttcaggaa ccctgaagt tttaagttca 1200

ttattcttta taacatttga gagaatcgga tgtagtgata tgacagggct 1250  
 ggggcaagaa caggggcact agctgcctta ttagctaatt tagtgccctc 1300  
 cgtgttcagc ttagcctttg accctttcct tttgatccac aaaatacatt 1350  
 aaaactctga attcacatac aatgctatatt taaagtcaat agatttttagc 1400  
 tataaagtgc ttgaccagta atgtgggtgt aattttgtgt atgttcccc 1450  
 acatcgcccc caacttcgga tgtgggggtca ggagggttgag gttcactatt 1500  
 aacaaatgtc ataaatatct catagaggta cagtgcgaat agatattcaa 1550  
 atgttgcattg ttgaccagag ggattttata tctgaagaac atacactatt 1600  
 aataaatacc ttagagaaag attttgacct ggcttttagat aaaactgtgg 1650  
 caagaaaaat gtaatgagca atatatggaa ataaacacac ctttggttaa 1700  
 gataaaaaaa aa 1712

<210> 2

<211> 246

<212> PRT

<213> Homo Sapien

<400> 2

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Trp | Arg | Gln | Leu | Ile | Tyr | Trp | Gln | Leu | Leu | Ala | Leu | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Phe | Leu | Pro | Phe | Cys | Leu | Cys | Gln | Asp | Glu | Tyr | Met | Glu | Ser | Pro |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Gln | Thr | Gly | Gly | Leu | Pro | Pro | Asp | Cys | Ser | Lys | Cys | Cys | His | Gly |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Asp | Tyr | Ser | Phe | Arg | Gly | Tyr | Gln | Gly | Pro | Pro | Gly | Pro | Pro | Gly |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Pro | Pro | Gly | Ile | Pro | Gly | Asn | His | Gly | Asn | Asn | Gly | Asn | Asn | Gly |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ala | Thr | Gly | His | Glu | Gly | Ala | Lys | Gly | Glu | Lys | Gly | Asp | Lys | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Asp | Leu | Gly | Pro | Arg | Gly | Glu | Arg | Gly | Gln | His | Gly | Pro | Lys | Gly |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Glu | Lys | Gly | Tyr | Pro | Gly | Ile | Pro | Pro | Glu | Leu | Gln | Ile | Ala | Phe |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Met | Ala | Ser | Leu | Ala | Thr | His | Phe | Ser | Asn | Gln | Asn | Ser | Gly | Ile |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ile | Phe | Ser | Ser | Val | Glu | Thr | Asn | Ile | Gly | Asn | Phe | Phe | Asp | Val |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Gly | Arg | Phe | Gly | Ala | Pro | Val | Ser | Gly | Val | Tyr | Phe | Phe |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Thr | Phe | Ser | Met | Met | Lys | His | Glu | Asp | Val | Glu | Glu | Val | Tyr | Val |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Tyr | Leu | Met | His | Asn | Gly | Asn | Thr | Val | Phe | Ser | Met | Tyr | Ser | Tyr |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Glu | Met | Lys | Gly | Lys | Ser | Asp | Thr | Ser | Ser | Asn | His | Ala | Val | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Lys | Leu | Ala | Lys | Gly | Asp | Glu | Val | Trp | Leu | Arg | Met | Gly | Asn | Gly |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ala | Leu | His | Gly | Asp | His | Gln | Arg | Phe | Ser | Thr | Phe | Ala | Gly | Phe |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Leu | Phe | Glu | Thr | Lys |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 245 |     |     |     |     |     |     |     |     |     |     |

<210> 3  
 <211> 43  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 3  
 tgtaaaacga cggccagtta aatagacctg caattattaa tct 43

<210> 4  
 <211> 41  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 4  
 caggaaacag ctatgaccac ctgcacacct gcaaattccat t 41

<210> 5  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 5  
 gcaacaatgg agccactggt catg 24

<210> 6  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 6  
gcaaagggtgg agaagcgttg gtgg 24

<210> 7  
<211> 52  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 7  
cccacttcag caatcagaac agtgggatta tctttcagca gtgtttgaga 50  
cc 52

<210> 8  
<211> 1579  
<212> DNA  
<213> Homo Sapien

<400> 8  
gagagaatag ctacagattc tccatcctca gtctttgcaa ggcgacagct 50  
gtgccagccg ggctctggca ggctcctggc agcatggcag tgaagcttgg 100  
gaccctcctg ctggcccttg ccctgggcct ggcccagcca gcctctgccc 150  
gccggaagct gctggtgttt ctgctggatg gttttcgctc agactacatc 200  
agtgatgagg cgctggagtc attgcctggt ttcaaagaga ttgtgagcag 250  
gggagtaaaa gtggattact tgactccaga cttccctagt ctctcgtatc 300  
ccaattatta taccctaata actggccgcc attgtgaagt ccatcagatg 350  
atcgggaact acatgtggga cccaccacc aacaagtcct ttgacattgg 400  
cgtcaacaaa gacagcctaa tgcctctctg gtggaatgga tcagaacctc 450  
tgtgggtcac tctgaccaag gccaaaagga aggtctacat gtactactgg 500  
ccaggctgtg aggttgagat tctgggtgtc agaccacct actgcctaga 550  
atataaaaat gtcccaacgg atatcaattt tgccaatgca gtcagcgatg 600  
ctcttgactc cttcaagagt ggccgggccc acctggcagc catataccat 650  
gagcgcattg acgtggaagg ccaccactac gggcctgcat ctccgcagag 700  
gaaagatgcc ctcaaggctg tagacactgt cctgaagtac atgaccaagt 750  
ggatccagga gcggggcctg caggaccgcc tgaacgtcat tattttctcg 800  
gatcacggaa tgaccgacat tttctggatg gacaaagtga ttgagctgaa 850

taagtacatc agcctgaatg acctgcagca agtgaaggac cgcgggcctg 900  
 ttgtgagcct ttggccggcc cctgggaaac actctgagat atataacaaa 950  
 ctgagcacag tggaacacat gactgtctac gagaaagaag ccatcccaag 1000  
 caggttctat tacaagaaag gaaagtttgt ctctcctttg acttttagtgg 1050  
 ctgatgaagg ctggttcata actgagaatc gagagatgct tccgtttttg 1100  
 atgaacagca ccggcaggcg ggaaggttgg cagcgtggat ggcacggcta 1150  
 cgacaacgag ctcatggaca tgcggggcat cttcctggcc ttcggacctg 1200  
 atttcaaatc caacttcaga gctgctccta tcaggtcggt ggacgtctac 1250  
 aatgtcatgt gcaatgtggt gggcatcacc ccgctgcca acaacggatc 1300  
 ctggtccagg gtgatgtgca tgctgaaggg ccgcgccggc actgccccgc 1350  
 ctgtctggcc cagccactgt gccctggcac tgattcttct cttcctgctt 1400  
 gcataactga tcatattgct tgtctcagaa aaaaacacca tcagcaaagt 1450  
 gggcctccaa agccagatga ttttcatttt atgtgtgaat aatagcttca 1500  
 ttaacacaat caagaccatg cacattgtaa atacattatt cttggataat 1550  
 tctatacata aaagttccta cttgttaaa 1579

<210> 9

<211> 440

<212> PRT

<213> Homo Sapien

<400> 9

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Val | Lys | Leu | Gly | Thr | Leu | Leu | Leu | Ala | Leu | Ala | Leu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Ala | Gln | Pro | Ala | Ser | Ala | Arg | Arg | Lys | Leu | Leu | Val | Phe | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Leu | Asp | Gly | Phe | Arg | Ser | Asp | Tyr | Ile | Ser | Asp | Glu | Ala | Leu | Glu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Ser | Leu | Pro | Gly | Phe | Lys | Glu | Ile | Val | Ser | Arg | Gly | Val | Lys | Val |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Asp | Tyr | Leu | Thr | Pro | Asp | Phe | Pro | Ser | Leu | Ser | Tyr | Pro | Asn | Tyr |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Tyr | Thr | Leu | Met | Thr | Gly | Arg | His | Cys | Glu | Val | His | Gln | Met | Ile |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Gly | Asn | Tyr | Met | Trp | Asp | Pro | Thr | Thr | Asn | Lys | Ser | Phe | Asp | Ile |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Gly | Val | Asn | Lys | Asp | Ser | Leu | Met | Pro | Leu | Trp | Trp | Asn | Gly | Ser |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Glu | Pro | Leu | Trp | Val | Thr | Leu | Thr | Lys | Ala | Lys | Arg | Lys | Val | Tyr |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Met | Tyr | Tyr | Trp | Pro | Gly | Cys | Glu | Val | Glu | Ile | Leu | Gly | Val | Arg |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Pro | Thr | Tyr | Cys | Leu | Glu | Tyr | Lys | Asn | Val | Pro | Thr | Asp | Ile | Asn |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Phe | Ala | Asn | Ala | Val | Ser | Asp | Ala | Leu | Asp | Ser | Phe | Lys | Ser | Gly |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Arg | Ala | Asp | Leu | Ala | Ala | Ile | Tyr | His | Glu | Arg | Ile | Asp | Val | Glu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Gly | His | His | Tyr | Gly | Pro | Ala | Ser | Pro | Gln | Arg | Lys | Asp | Ala | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Lys | Ala | Val | Asp | Thr | Val | Leu | Lys | Tyr | Met | Thr | Lys | Trp | Ile | Gln |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Glu | Arg | Gly | Leu | Gln | Asp | Arg | Leu | Asn | Val | Ile | Ile | Phe | Ser | Asp |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| His | Gly | Met | Thr | Asp | Ile | Phe | Trp | Met | Asp | Lys | Val | Ile | Glu | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Asn | Lys | Tyr | Ile | Ser | Leu | Asn | Asp | Leu | Gln | Gln | Val | Lys | Asp | Arg |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Gly | Pro | Val | Val | Ser | Leu | Trp | Pro | Ala | Pro | Gly | Lys | His | Ser | Glu |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Ile | Tyr | Asn | Lys | Leu | Ser | Thr | Val | Glu | His | Met | Thr | Val | Tyr | Glu |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Lys | Glu | Ala | Ile | Pro | Ser | Arg | Phe | Tyr | Tyr | Lys | Lys | Gly | Lys | Phe |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Val | Ser | Pro | Leu | Thr | Leu | Val | Ala | Asp | Glu | Gly | Trp | Phe | Ile | Thr |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Glu | Asn | Arg | Glu | Met | Leu | Pro | Phe | Trp | Met | Asn | Ser | Thr | Gly | Arg |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Arg | Glu | Gly | Trp | Gln | Arg | Gly | Trp | His | Gly | Tyr | Asp | Asn | Glu | Leu |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Met | Asp | Met | Arg | Gly | Ile | Phe | Leu | Ala | Phe | Gly | Pro | Asp | Phe | Lys |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Ser | Asn | Phe | Arg | Ala | Ala | Pro | Ile | Arg | Ser | Val | Asp | Val | Tyr | Asn |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Val | Met | Cys | Asn | Val | Val | Gly | Ile | Thr | Pro | Leu | Pro | Asn | Asn | Gly |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |

Ser Trp Ser Arg Val Met Cys Met Leu Lys Gly Arg Ala Gly Thr  
 410 415 420

Ala Pro Pro Val Trp Pro Ser His Cys Ala Leu Ala Leu Ile Leu  
 425 430 435

Leu Phe Leu Leu Ala  
 440

<210> 10

<211> 1047

<212> DNA

<213> Homo Sapien

<400> 10

gccagggtgtg caggccgctc caagcccagc ctgccccgct gccgccacca 50  
 tgacgctcct ccccgccctc ctgtttctga cctggctgca cacatgcctg 100  
 gccaccatg acccctccct cagggggcac cccacagtc acggtacccc 150  
 aactgctac tcggctgagg aactgccctt cggccaggcc ccccccacacc 200  
 tgctggctcg aggtgccaag tgggggcagg ctttgccctgt agccctggtg 250  
 tccagcctgg aggcagcaag ccacaggggg aggcacgaga ggccctcagc 300  
 tacgaccag tgcccgggtgc tgcggccgga ggagggtgtt gaggcagaca 350  
 cccaccagcg ctccatctca ccctggagat accgtgtgga cacggatgag 400  
 gaccgctatc cacagaagct ggccttcgcc gagtgcctgt gcagaggctg 450  
 tatcgatgca cggacggggc gcgagacagc tgcgctcaac tccgtgcggc 500  
 tgctccagag cctgctgggtg ctgcgccgcc ggccctgctc ccgcgacggc 550  
 tcggggctcc ccacacctgg ggcctttgcc ttccacaccg agttcatcca 600  
 cgtccccgtc ggctgcacct gcgtgctgcc ccgttcagtg tgaccgccga 650  
 ggccgtgggg cccctagact ggacacgtgt gctccccaga gggcaccccc 700  
 tatttatgtg tatttattgt tatttatatg cctcccccaa cactaccctt 750  
 ggggtctggg cattccccgt gtctggagga cagcccccca ctgttctcct 800  
 catctccagc ctcagtagtt gggggtagaa ggagctcagc acctcttcca 850  
 gcccttaaag ctgcagaaaa ggtgtcacac ggctgcctgt accttggtc 900  
 cctgtcctgc tcccggcttc cttacccta tcaactggcct caggccccgc 950  
 aggctgcctc ttcccaacct ccttggaagt acccctgttt cttaaacaat 1000  
 tatttaagtg tacgtgtatt attaaactga tgaacacatc cccaaaa 1047

<210> 11

<211> 197  
 <212> PRT  
 <213> Homo Sapien

<400> 11

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Leu | Leu | Pro | Gly | Leu | Leu | Phe | Leu | Thr | Trp | Leu | His | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Cys | Leu | Ala | His | His | Asp | Pro | Ser | Leu | Arg | Gly | His | Pro | His | Ser |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| His | Gly | Thr | Pro | His | Cys | Tyr | Ser | Ala | Glu | Glu | Leu | Pro | Leu | Gly |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Gln | Ala | Pro | Pro | His | Leu | Leu | Ala | Arg | Gly | Ala | Lys | Trp | Gly | Gln |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ala | Leu | Pro | Val | Ala | Leu | Val | Ser | Ser | Leu | Glu | Ala | Ala | Ser | His |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Arg | Gly | Arg | His | Glu | Arg | Pro | Ser | Ala | Thr | Thr | Gln | Cys | Pro | Val |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Leu | Arg | Pro | Glu | Glu | Val | Leu | Glu | Ala | Asp | Thr | His | Gln | Arg | Ser |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ile | Ser | Pro | Trp | Arg | Tyr | Arg | Val | Asp | Thr | Asp | Glu | Asp | Arg | Tyr |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Pro | Gln | Lys | Leu | Ala | Phe | Ala | Glu | Cys | Leu | Cys | Arg | Gly | Cys | Ile |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Asp | Ala | Arg | Thr | Gly | Arg | Glu | Thr | Ala | Ala | Leu | Asn | Ser | Val | Arg |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Leu | Leu | Gln | Ser | Leu | Leu | Val | Leu | Arg | Arg | Arg | Pro | Cys | Ser | Arg |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Asp | Gly | Ser | Gly | Leu | Pro | Thr | Pro | Gly | Ala | Phe | Ala | Phe | His | Thr |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Glu | Phe | Ile | His | Val | Pro | Val | Gly | Cys | Thr | Cys | Val | Leu | Pro | Arg |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |

Ser Val

<210> 12  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 12  
 atccacagaa gctggccttc gccg 24

<210> 13  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 13  
gggacgtgga tgaactcggg gtgg 24

<210> 14  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 14  
tatccacaga agctggcctt cgccgagtgc ctgtgcagag 40

<210> 15  
<211> 660  
<212> DNA  
<213> Homo Sapien

<400> 15  
cggccagggc gccgacagcc cgacctcacc aggagaacat gcagctcggc 50  
actgggctcc tgctggccgc cgtcctgagc ctgcagctgg ctgcagccga 100  
agccatatgg tgtcaccagt gcacggggctt cggaggggtgc tcccatggat 150  
ccagatgcct gagggactcc acccactgtg tcaccactgc caccggggtc 200  
ctcagcaaca ccgaggattt gcctctggtc accaagatgt gccacatagg 250  
ctgccccgat atccccagcc tgggcctggg cccctacgta tccatcgctt 300  
gctgccagac cagcctctgc aaccatgact gacggctgcc ctctccagg 350  
ccccgggacg ctcagcccc acagccccca cagcctggcg ccagggtca 400  
cggccgcccc tccctcgaga ctggccagcc cacctctccc ggcctctgca 450  
gccaccgtcc agcaccgctt gtcctaggga agtcctgcgt ggagtcttgc 500  
ctcaatctgc tgccgtccaa gcctggggcc catcgtgcct gccgcccctt 550  
caggtcccga cctccccaca ataaaatgtg attggatcgt gtggtacaaa 600  
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 650  
aaaaaaaaa 660

<210> 16  
<211> 97

<212> PRT  
<213> Homo Sapien

<400> 16

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Gln | Leu | Gly | Thr | Gly | Leu | Leu | Leu | Ala | Ala | Val | Leu | Ser | Leu |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Gln | Leu | Ala | Ala | Ala | Glu | Ala | Ile | Trp | Cys | His | Gln | Cys | Thr | Gly |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Phe | Gly | Gly | Cys | Ser | His | Gly | Ser | Arg | Cys | Leu | Arg | Asp | Ser | Thr |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| His | Cys | Val | Thr | Thr | Ala | Thr | Arg | Val | Leu | Ser | Asn | Thr | Glu | Asp |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Leu | Pro | Leu | Val | Thr | Lys | Met | Cys | His | Ile | Gly | Cys | Pro | Asp | Ile |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Pro | Ser | Leu | Gly | Leu | Gly | Pro | Tyr | Val | Ser | Ile | Ala | Cys | Cys | Gln |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Thr | Ser | Leu | Cys | Asn | His | Asp |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 95  |     |     |     |     |     |     |     |     |     |     |  |

<210> 17  
<211> 2570  
<212> DNA  
<213> Homo Sapien

<400> 17

ccaggaccag ggcgcaccgg ctcagcctct cacttgctcag aggccgggga 50  
agagaagcaa agcgcaacgg tgtggtccaa gccgggggctt ctgcttcgcc 100  
tctaggacat acacgggacc ccctaacttc agtcccccaa acgcgcaccc 150  
tcgaagtctt gaactccagc cccgcacatc cacgcgcggc acaggcgcg 200  
caggcggcag gtcccggccg aaggcgatgc gcgcaggggg tcgggcagct 250  
gggctcgggc ggcgggagta gggcccggca gggaggcagg gaggctgcat 300  
attcagagtc gcgggctgcg ccctgggcag aggccgccct cgctccacgc 350  
aacacctgct gctgccaccg cgccgcgatg agccgcgtgg tctcgtgct 400  
gctgggcgcc gcgctgctct gcggccacgg agccttctgc cgccgcgtgg 450  
tcagcggcca aaaggtgtgt tttgctgact tcaagcatcc ctgctacaaa 500  
atggcctact tccatgaact gtccagccga gtgagctttc aggaggcacg 550  
cctggcttgt gagagtgagg gaggagtcct cctcagcctt gagaatgaag 600  
cagaacagaa gttaatagag agcatgttgc aaaacctgac aaaacccggg 650  
acagggattt ctgatgggtga tttctggata gggctttgga ggaatggaga 700

tgggcaaaca tctggtgcct gccagatct ctaccagtgg tctgatggaa 750  
 gcaattccca gtaccgaaac tggtagacag atgaaccttc ctgcggaagt 800  
 gaaaagtgtg ttgtgatgta tcaccaacca actgccaatc ctggccttgg 850  
 gggccctac ctttaccagt ggaatgatga caggtgtaac atgaagcaca 900  
 attatatttg caagtatgaa ccagagatta atccaacagc ccctgtagaa 950  
 aagccttata ttacaaatca accaggagac acccatcaga atgtggttgt 1000  
 tactgaagca ggtataattc ccaatctaata ttatgttgtt ataccaacaa 1050  
 taccctgct cttactgata ctggttgctt ttggaacctg ttgtttccag 1100  
 atgctgcata aaagtaaagg aagaacaaaa actagtccaa accagtctac 1150  
 actgtggatt tcaaagagta ccagaaaaga aagtggcatg gaagtataat 1200  
 aactcattga cttggttcca gaattttgta attctggatc tgtataagga 1250  
 atggcatcag aacaatagct tggaatggct tgaaatcaca aaggatctgc 1300  
 aagatgaact gtaagctccc ccttgaggca aatattaaag taatttttat 1350  
 atgtctatta tttcatttaa agaatatgct gtgctaataa tggagtgaga 1400  
 catgcttatt ttgctaaagg atgcacccaa acttcaaact tcaagcaaata 1450  
 gaaatggaca atgcagataa agttgttata aacacgtcgg gagtatgtgt 1500  
 gttagaagca attcctttta tttctttcac ctttcataag ttgttatcta 1550  
 gtcaatgtaa tgtatattgt attgaaattt acagtgtgca aaagtatttt 1600  
 acctttgcat aagtgtttga taaaaatgaa ctgttctaata atttattttt 1650  
 atggcatctc atttttcaat acatgctctt ttgattaaag aaacttatta 1700  
 ctgttgctca ctgaattcac acacacacaa atatagtacc atagaaaaag 1750  
 tttgttttct cgaaataatt catctttcag cttctctgct tttggtcaat 1800  
 gtctaggaaa tctcttcaga aataagaagc tatttcatta agtgtgatat 1850  
 aaacctcctc aaacatttta cttagaggca aggattgtct aatttcaatt 1900  
 gtgcaagaca tgtgccttat aattattttt agcttaaaat taaacagatt 1950  
 ttgtaataat gtaactttgt taataggtgc ataaacacta atgcagtcaa 2000  
 tttgaacaaa agaagtgaca tacacaatat aaatcatatg tcttcacacg 2050  
 ttgcctatat aatgagaagc agctctctga gggttctgaa atcaatgtgg 2100  
 tccctctctt gccactaaa caaagatggg tggttcggggg ttgggattga 2150

cactggaggc agatagttgc aaagttagtc taaggtttcc ctagctgtat 2200  
 ttagcctctg actatattag tatacaaaga ggtcatgtgg ttgagaccag 2250  
 gtgaatagtc actatcagtg tggagacaag cacagcacac agacatttta 2300  
 ggaaggaaag gaactacgaa atcgtgtgaa aatgggttgg aaccocatcag 2350  
 tgatcgcata ttcattgatg agggtttgct tgagatagaa aatgggtggct 2400  
 cctttctgtc ttatctccta gtttcttcaa tgcttacgcc ttgttcttct 2450  
 caagagaaag ttgtaactct ctgggtcttca tatgtccctg tgctcctttt 2500  
 aaccaaataa agagttcttg tttctggggg aaaaaaaaaa aaaaaaaaaa 2550  
 aaaaaaaaaa aaaaaaaaaa 2570

<210> 18  
 <211> 273  
 <212> PRT  
 <213> Homo Sapien

<400> 18  
 Met Ser Arg Val Val Ser Leu Leu Leu Gly Ala Ala Leu Leu Cys  
 1 5 10 15  
 Gly His Gly Ala Phe Cys Arg Arg Val Val Ser Gly Gln Lys Val  
 20 25 30  
 Cys Phe Ala Asp Phe Lys His Pro Cys Tyr Lys Met Ala Tyr Phe  
 35 40 45  
 His Glu Leu Ser Ser Arg Val Ser Phe Gln Glu Ala Arg Leu Ala  
 50 55 60  
 Cys Glu Ser Glu Gly Gly Val Leu Leu Ser Leu Glu Asn Glu Ala  
 65 70 75  
 Glu Gln Lys Leu Ile Glu Ser Met Leu Gln Asn Leu Thr Lys Pro  
 80 85 90  
 Gly Thr Gly Ile Ser Asp Gly Asp Phe Trp Ile Gly Leu Trp Arg  
 95 100 105  
 Asn Gly Asp Gly Gln Thr Ser Gly Ala Cys Pro Asp Leu Tyr Gln  
 110 115 120  
 Trp Ser Asp Gly Ser Asn Ser Gln Tyr Arg Asn Trp Tyr Thr Asp  
 125 130 135  
 Glu Pro Ser Cys Gly Ser Glu Lys Cys Val Val Met Tyr His Gln  
 140 145 150  
 Pro Thr Ala Asn Pro Gly Leu Gly Gly Pro Tyr Leu Tyr Gln Trp  
 155 160 165  
 Asn Asp Asp Arg Cys Asn Met Lys His Asn Tyr Ile Cys Lys Tyr

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 170 |     | 175 |     | 180 |     |     |     |     |     |     |     |     |     |
| Glu | Pro | Glu | Ile | Asn | Pro | Thr | Ala | Pro | Val | Glu | Lys | Pro | Tyr | Leu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Thr | Asn | Gln | Pro | Gly | Asp | Thr | His | Gln | Asn | Val | Val | Val | Thr | Glu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ala | Gly | Ile | Ile | Pro | Asn | Leu | Ile | Tyr | Val | Val | Ile | Pro | Thr | Ile |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Pro | Leu | Leu | Leu | Leu | Ile | Leu | Val | Ala | Phe | Gly | Thr | Cys | Cys | Phe |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gln | Met | Leu | His | Lys | Ser | Lys | Gly | Arg | Thr | Lys | Thr | Ser | Pro | Asn |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gln | Ser | Thr | Leu | Trp | Ile | Ser | Lys | Ser | Thr | Arg | Lys | Glu | Ser | Gly |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |

Met Glu Val

<210> 19  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 19  
 caccaaccaa ctgccaatcc tggc 24

<210> 20  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 20  
 accacattct gatgggtgtc tcctgg 26

<210> 21  
 <211> 49  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 21  
 ggggtccctac ctttaccagt ggaatgatga caggtgtaac atgaagcac 49

<210> 22  
 <211> 3824



<212> DNA

<213> Homo Sapien

<400> 22

ggagaatgga gagagcagtg agagtggagt ccgggggtcct ggtcgggggtg 50  
gtctgtctgc tcctggcatg ccctgccaca gccactgggc ccgaagttgc 100  
tcagcctgaa gtagacacca ccctgggtcg tgtgcgaggc cggcaggtgg 150  
gcgtgaaggg cacagaccgc cttgtgaatg tctttctggg cattccattt 200  
gcccagccgc cactgggccc tgaccggttc tcagccccac acccagcaca 250  
gccctgggag ggtgtgcggg atgccagcac tgcgccccca atgtgcctac 300  
aagacgtgga gagcatgaac agcagcagat ttgtcctcaa cggaaaacag 350  
cagatcttct ccgtttcaga ggactgcctg gtcctcaacg tctatagccc 400  
agctgaggtc cccgcagggt ccggtaggcc ggtcatggta tgggtccatg 450  
gaggcgctct gataactggc gctgccacct cctacgatgg atcagctctg 500  
gctgcctatg gggatgtggt cgtggttaca gtccagtacc gccttgggggt 550  
ccttggcttc ttcagcactg gagatgagca tgcacctggc aaccaggggt 600  
tcctagatgt ggtagctgct ttgcgctggg tgcaagaaaa catcgcccc 650  
ttcgggggtg acctcaactg tgtcactgtc tttggtggat ctgccggtgg 700  
gagcatcatc tctggcctgg tcctgtcccc agtggctgca gggctgttcc 750  
acagagccat cacacagagt ggggtcatca ccaccccagg gatcatcgac 800  
tctcaccctt ggcccctagc tcagaaaatc gcaaacacct tggcctgcag 850  
ctccagctcc ccggctgaga tgggtgcagt ccttcagcag aaagaaggag 900  
aagagctggg ccttagcaag aagctgaaaa atactatcta tcctctcacc 950  
gttgatggca ctgtcttccc caaaagcccc aaggaactcc tgaaggagaa 1000  
gcccttccac tctgtgccct tcctcatggg tgtcaacaac catgagttca 1050  
gctggctcat ccccaggggc tgggggtctcc tggatacaat ggagcagatg 1100  
agccgggagg acatgctggc catctcaaca cccgtcttga ccagtctgga 1150  
tgtgccccct gagatgatgc ccaccgtcat agatgaatac ctaggaagca 1200  
actcggacgc acaagccaaa tgccaggcgt tccaggaatt catgggtgac 1250  
gtattcatca atgttcccac cgtcagtttt tcaagatacc ttcgagattc 1300  
tggaagccct gtctttttct atgagttcca gcatcgaccc agttcttttg 1350

cgaagatcaa acctgcctgg gtgaaggctg atcatggggc cgaggggtgct 1400  
 tttgtgttcg gaggtccctt cctcatggac gagagctccc gcctggcctt 1450  
 tccagaggcc acagaggagg agaagcagct aagcctcacc atgatggccc 1500  
 agtggacca ctttgcccgg acaggggacc ccaatagcaa ggctctgcct 1550  
 ccttggcccc aattcaacca ggcggaacaa tatctggaga tcaaccagct 1600  
 gccacggggc ggacagaagt tcagggaggc ctggatgcag ttctggtcag 1650  
 agacgctccc cagcaagata caacagtggc accagaagca gaagaacagg 1700  
 aaggcccagg aggacctctg aggccaggcc tgaaccttct tggctggggc 1750  
 aaaccactct tcaagtgggtg gcagagtccc agcacggcag cccgcctctc 1800  
 cccctgctga gactttaatc tccaccagcc cttaaagtgt cggccgctct 1850  
 gtgactggag ttatgctctt ttgaaatgtc acaaggccgc ctcccacctc 1900  
 tggggcattg tacaagttct tccctctccc tgaagtgcct ttctgctttt 1950  
 ctctgtggta ggttctagca cattcctcta gcttcctgga ggactcactc 2000  
 cccaggaagc ctccctgcc ttctctgggc tgtgcggccc cgagtctgcg 2050  
 tccattagag cacagtccac ccgaggctag caccgtgtct gtgtctgtct 2100  
 cccctcaga ggagctctct caaaatgggg attagcctaa cccactctg 2150  
 tcacccacac caggatcggg tgggacctgg agctaggggg tgtttgctga 2200  
 gtgagtgagt gaaacacaga atatgggaat ggcagctgct gaacttgaac 2250  
 ccagagcctt caggtgccaa agccatactc aggccccac cgacattgtc 2300  
 caccctggcc agaaggggtgc atgccaatgg cagagacctg ggatgggaga 2350  
 agtcctgggg cgccagggga tccagcctag agcagacctt agcccctgac 2400  
 taaggcctca gactagggcg ggaggggtct cctcctctct gctgcccagt 2450  
 cctggcccct gcacaagaca acagaatcca tcagggccat gagtgtcacc 2500  
 cagacctgac cctcaccaat tccagcccct gaccctcagg acgctggatg 2550  
 ccagctccca gcccagtgcc cgggtcctcc ctcccttctt ggcttgggga 2600  
 gaccagtttc tggggagctt ccaagagcac ccaccaagac acagcaggac 2650  
 aggccagggg agggcatctg gaccagggca tccgtcgggc tattgtcaca 2700  
 gagaaaagaa gagaccacc cactcgggct gcaaaagggtg aaaagcacca 2750  
 agaggttttc agatggaagt gagaggtgac agtgtgctgg cagccctcac 2800

agccctcgct tgctctccct gccgcctctg cctgggctcc cactttggca 2850  
 gcacttgagg agcccttcaa cccgccgctg cactgtagga gcccctttct 2900  
 gggctggcca aggccggagc cagctccctc agcttgcggg gaggtgcgga 2950  
 gggagagggg cgggcaggaa ccggggctgc gcgcagcgct tgcgggccag 3000  
 agtgagttcc ggggtgggct gggctcggcg gggccccact cagagcagct 3050  
 ggccggcccc aggcagtgag ggccttagca cctgggccag cagctgctgt 3100  
 gctcgatttc tcgctgggcc ttagctgcct ccccgcgggg cagggtcgg 3150  
 gacctgcagc cctccatgcc tgaccctccc cccaccccc gtgggctcct 3200  
 gtgcggccgg agcctcccca aggagcgccg cccctgctc cacagcgccc 3250  
 agtcccatcg accaccaag ggctgaggag tgcgggtgca cagcgcgga 3300  
 ctggcaggca gctccacctg ctgccccagt gctggatcca ctgggtgaag 3350  
 ccagctgggc tcctgagtct ggtggggact tggagaacct ttatgtctag 3400  
 ctaagggatt gtaaatacac cgatgggcac tctgtatcta gctcaagggt 3450  
 tgtaaacaca ccaatcagca ccctgtgtct agctcagtgt ttgtgaatgc 3500  
 accaatccac actctgtatc tggctactct ggtggggact tggagaacct 3550  
 ttgtgtccac actctgtatc tagctaact agtggggatg tggagaacct 3600  
 ttgtgtctag ctgaggatc gtaaacgcac caatcagcac cctgtcaaaa 3650  
 cagaccactt gactctctgt aaaatggacc aatcagcagg atgtgggtgg 3700  
 ggcgagacaa gagaataaaa gcaggctgcc tgagccagca gtgacaacc 3750  
 ccctcgggtc ccctcccacg ccgtggaagc tttgttcttt cgctctttgc 3800  
 aataaatctt gctactgccc aaaa 3824

<210> 23

<211> 571

<212> PRT

<213> Homo Sapien

<400> 23

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Arg | Ala | Val | Arg | Val | Glu | Ser | Gly | Val | Leu | Val | Gly | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Cys | Leu | Leu | Leu | Ala | Cys | Pro | Ala | Thr | Ala | Thr | Gly | Pro | Glu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ala | Gln | Pro | Glu | Val | Asp | Thr | Thr | Leu | Gly | Arg | Val | Arg | Gly |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Gln | Val | Gly | Val | Lys | Gly | Thr | Asp | Arg | Leu | Val | Asn | Val | Phe |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|                     | 50              | 55                  | 60  |
|---------------------|-----------------|---------------------|-----|
| Leu Gly Ile Pro Phe | Ala Gln Pro Pro | Leu Gly Pro Asp Arg | Phe |
|                     | 65              | 70                  | 75  |
| Ser Ala Pro His Pro | Ala Gln Pro Trp | Glu Gly Val Arg Asp | Ala |
|                     | 80              | 85                  | 90  |
| Ser Thr Ala Pro Pro | Met Cys Leu Gln | Asp Val Glu Ser Met | Asn |
|                     | 95              | 100                 | 105 |
| Ser Ser Arg Phe Val | Leu Asn Gly Lys | Gln Gln Ile Phe Ser | Val |
|                     | 110             | 115                 | 120 |
| Ser Glu Asp Cys Leu | Val Leu Asn Val | Tyr Ser Pro Ala Glu | Val |
|                     | 125             | 130                 | 135 |
| Pro Ala Gly Ser Gly | Arg Pro Val Met | Val Trp Val His Gly | Gly |
|                     | 140             | 145                 | 150 |
| Ala Leu Ile Thr Gly | Ala Ala Thr Ser | Tyr Asp Gly Ser Ala | Leu |
|                     | 155             | 160                 | 165 |
| Ala Ala Tyr Gly Asp | Val Val Val Val | Thr Val Gln Tyr Arg | Leu |
|                     | 170             | 175                 | 180 |
| Gly Val Leu Gly Phe | Phe Ser Thr Gly | Asp Glu His Ala Pro | Gly |
|                     | 185             | 190                 | 195 |
| Asn Gln Gly Phe Leu | Asp Val Val Ala | Ala Leu Arg Trp Val | Gln |
|                     | 200             | 205                 | 210 |
| Glu Asn Ile Ala Pro | Phe Gly Gly Asp | Leu Asn Cys Val Thr | Val |
|                     | 215             | 220                 | 225 |
| Phe Gly Gly Ser Ala | Gly Gly Ser Ile | Ile Ser Gly Leu Val | Leu |
|                     | 230             | 235                 | 240 |
| Ser Pro Val Ala Ala | Gly Leu Phe His | Arg Ala Ile Thr Gln | Ser |
|                     | 245             | 250                 | 255 |
| Gly Val Ile Thr Thr | Pro Gly Ile Ile | Asp Ser His Pro Trp | Pro |
|                     | 260             | 265                 | 270 |
| Leu Ala Gln Lys Ile | Ala Asn Thr Leu | Ala Cys Ser Ser Ser | Ser |
|                     | 275             | 280                 | 285 |
| Pro Ala Glu Met Val | Gln Cys Leu Gln | Gln Lys Glu Gly Glu | Glu |
|                     | 290             | 295                 | 300 |
| Leu Val Leu Ser Lys | Lys Leu Lys Asn | Thr Ile Tyr Pro Leu | Thr |
|                     | 305             | 310                 | 315 |
| Val Asp Gly Thr Val | Phe Pro Lys Ser | Pro Lys Glu Leu Leu | Lys |
|                     | 320             | 325                 | 330 |
| Glu Lys Pro Phe His | Ser Val Pro Phe | Leu Met Gly Val Asn | Asn |
|                     | 335             | 340                 | 345 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| His | Glu | Phe | Ser | Trp | Leu | Ile | Pro | Arg | Gly | Trp | Gly | Leu | Leu | Asp |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Thr | Met | Glu | Gln | Met | Ser | Arg | Glu | Asp | Met | Leu | Ala | Ile | Ser | Thr |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Pro | Val | Leu | Thr | Ser | Leu | Asp | Val | Pro | Pro | Glu | Met | Met | Pro | Thr |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Val | Ile | Asp | Glu | Tyr | Leu | Gly | Ser | Asn | Ser | Asp | Ala | Gln | Ala | Lys |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| Cys | Gln | Ala | Phe | Gln | Glu | Phe | Met | Gly | Asp | Val | Phe | Ile | Asn | Val |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |
| Pro | Thr | Val | Ser | Phe | Ser | Arg | Tyr | Leu | Arg | Asp | Ser | Gly | Ser | Pro |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |  |
| Val | Phe | Phe | Tyr | Glu | Phe | Gln | His | Arg | Pro | Ser | Ser | Phe | Ala | Lys |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |  |
| Ile | Lys | Pro | Ala | Trp | Val | Lys | Ala | Asp | His | Gly | Ala | Glu | Gly | Ala |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |  |
| Phe | Val | Phe | Gly | Gly | Pro | Phe | Leu | Met | Asp | Glu | Ser | Ser | Arg | Leu |  |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |
| Ala | Phe | Pro | Glu | Ala | Thr | Glu | Glu | Glu | Lys | Gln | Leu | Ser | Leu | Thr |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |  |
| Met | Met | Ala | Gln | Trp | Thr | His | Phe | Ala | Arg | Thr | Gly | Asp | Pro | Asn |  |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |  |
| Ser | Lys | Ala | Leu | Pro | Pro | Trp | Pro | Gln | Phe | Asn | Gln | Ala | Glu | Gln |  |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |  |
| Tyr | Leu | Glu | Ile | Asn | Pro | Val | Pro | Arg | Ala | Gly | Gln | Lys | Phe | Arg |  |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |  |
| Glu | Ala | Trp | Met | Gln | Phe | Trp | Ser | Glu | Thr | Leu | Pro | Ser | Lys | Ile |  |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |  |
| Gln | Gln | Trp | His | Gln | Lys | Gln | Lys | Asn | Arg | Lys | Ala | Gln | Glu | Asp |  |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |  |

Leu

<210> 24

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 24

gcaaagctct gcctccttgg cc 22

<210> 25  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 25  
gggtggactg tgctctaag gacgc 25

<210> 26  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 26  
cgtggcactg ggttgatc 18

<210> 27  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 27  
gatgcagttc tggtcagaga cgctccccag caagatacaa cagtg 45

<210> 28  
<211> 1342  
<212> DNA  
<213> Homo Sapien

<400> 28  
catggagcct cttgcagctt acccgctaaa atgttccggg cccagagcaa 50  
aggtatttgc agttttgctg tctatagttc tatgcacagt aacgctatatt 100  
cttctacaac taaaattcct caaacctaaa atcaacagct tttatgcctt 150  
tgaagtgaag gatgcaaaag gaagaactgt ttctctggaa aagtataaag 200  
gcaaagtttc actagttgta aacgtggcca gtgactgcca actcacagac 250  
agaaattact tagggctgaa ggaactgcac aaagagtttg gaccatccca 300  
cttcagcgtg ttggcttttc cctgcaatca gtttggagaa tcggagcccc 350  
gccaagcaa ggaagtagaa tcttttgcaa gaaaaaacta cggagtaact 400  
ttccccatct tccacaagat taagattcta ggatctgaag gagaacctgc 450  
atttagattt cttgttgatt cttcaaagaa ggaaccaagg tggaattttt 500

ggaagtatct tgtcaaccct gaggggtcaag ttgtgaagtt ctggaggcca 550  
 gaggagccca ttgaagtcac caggcctgac atagcagctc tggtagaca 600  
 agtgatcata aaaaagaaag aggatctatg agaatgccat tgcgtttcta 650  
 atagaacaga gaaatgtctc catgaggggtt tgggtctcatt ttaaactttt 700  
 tttttttgga gacagtgtct cactctgtca cccaggctgg agtgcagtag 750  
 tgcgtttcta gctcattgca acctctgcct ttttaaactat gctattaaat 800  
 gtggcaatga aggatttttt tttaatgtta tcttgctatt aagtggtaat 850  
 gaatgttccc aggatgagga tgttacccaa agcaaaaatc aagagtagcc 900  
 aaagaatcaa catgaaatat attactact tcctctgacc atactaaaga 950  
 attcagaata cacagtgacc aatgtgcctc aatatcttat tgttcaactt 1000  
 gacattttct aggactgtac ttgatgaaaa tgccaacaca ctagaccact 1050  
 ctttggaattc aagagcactg tgtatgactg aaatttctgg aataactgta 1100  
 aatgggttatg ttaatggaat aaaacacaaa tgttgaaaaa tgtaaaatat 1150  
 atatacatag attcaaattc ttatatatgt atgcttggtt tgtgtacagg 1200  
 attttggtttt ttctttttta gtacagggtc ctagtggttt actataactg 1250  
 tcactatgta tgtaactgac atatataaat agtcatttat aaatgaccgt 1300  
 attataacat ttgaaaaagt cttcatcaaa aaaaaaaaaa aa 1342

<210> 29  
 <211> 209  
 <212> PRT  
 <213> Homo Sapien

<400> 29  
 Met Glu Pro Leu Ala Ala Tyr Pro Leu Lys Cys Ser Gly Pro Arg  
 1 5 10 15  
 Ala Lys Val Phe Ala Val Leu Leu Ser Ile Val Leu Cys Thr Val  
 20 25 30  
 Thr Leu Phe Leu Leu Gln Leu Lys Phe Leu Lys Pro Lys Ile Asn  
 35 40 45  
 Ser Phe Tyr Ala Phe Glu Val Lys Asp Ala Lys Gly Arg Thr Val  
 50 55 60  
 Ser Leu Glu Lys Tyr Lys Gly Lys Val Ser Leu Val Val Asn Val  
 65 70 75  
 Ala Ser Asp Cys Gln Leu Thr Asp Arg Asn Tyr Leu Gly Leu Lys  
 80 85 90

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Leu | His | Lys | Glu | Phe | Gly | Pro | Ser | His | Phe | Ser | Val | Leu | Ala |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Phe | Pro | Cys | Asn | Gln | Phe | Gly | Glu | Ser | Glu | Pro | Arg | Pro | Ser | Lys |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Glu | Val | Glu | Ser | Phe | Ala | Arg | Lys | Asn | Tyr | Gly | Val | Thr | Phe | Pro |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Ile | Phe | His | Lys | Ile | Lys | Ile | Leu | Gly | Ser | Glu | Gly | Glu | Pro | Ala |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Phe | Arg | Phe | Leu | Val | Asp | Ser | Ser | Lys | Lys | Glu | Pro | Arg | Trp | Asn |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Phe | Trp | Lys | Tyr | Leu | Val | Asn | Pro | Glu | Gly | Gln | Val | Val | Lys | Phe |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Trp | Arg | Pro | Glu | Glu | Pro | Ile | Glu | Val | Ile | Arg | Pro | Asp | Ile | Ala |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Ala | Leu | Val | Arg | Gln | Val | Ile | Ile | Lys | Lys | Lys | Glu | Asp | Leu |     |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |     |  |

<210> 30  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 30  
 atcctccaac atggagcctc ttgc 24  
  
 <210> 31  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 31  
 gtatcctgtc aaccctgagg 20  
  
 <210> 32  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 32  
 taaccagagc tgctatgtca ggcc 24  
  
 <210> 33



<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 33  
aggcaaagtt tcactagttg taaacgtggc cagtgactgc caactcacag 50

<210> 34  
<211> 3721  
<212> DNA  
<213> Homo Sapien

<400> 34  
tgtcgctgg ccctcgccat gcagaccccg cgagcgtccc ctccccgccc 50  
ggccctcctg cttctgctgc tgctactggg gggcgccac gccctctttc 100  
ctgaggagcc gccgcccgtt agcgtggccc ccagggacta cctgaaccac 150  
tatcccgtgt ttgtgggcag cgggcccgga cgcctgacct ccgcagaagg 200  
tgctgacgac ctcaacatcc agcgagtcct gcgggtcaac aggacgctgt 250  
tcattgggga cagggacaac ctctaccgcg tagagctgga gccccccacg 300  
tccacggagc tgcggtacca gaggaagctg acctggagat ctaaccccag 350  
cgacataaac gtgtgtcggg tgaagggcaa acaggagggc gagtgtcgaa 400  
acttcgtaaa ggtgctgctc ctccgggacg agtccacgct ctttgtgtgc 450  
ggttccaacg ccttcaaccc ggtgtgcgcc aactacagca tagacaccct 500  
gcagcccgtc ggagacaaca tcagcgggat ggcccgtgc ccgtacgacc 550  
ccaagcacgc caatgttgcc ctcttctctg acgggatgct cttcacagct 600  
actgttaccg acttcctagc cattgatgct gtcattctacc gcagcctcgg 650  
ggacaggccc accctgcgca ccgtgaaaca tgactccaag tggttcaaag 700  
agccttactt tgtccatgcg gtggagtggg gcagccatgt ctacttcttc 750  
ttccgggaga ttgcgatgga gtttaactac ctggagaagg tgggtggtgtc 800  
ccgcgtggcc cgagtgtgca agaacgacgt gggaggctcc ccccgctgc 850  
tggaagaagc gtggacgtcc ttctgaagg cgcggctcaa ctgctctgta 900  
cccgagagact cccatttcta cttcaacgtg ctgcaggctg tcacgggcgt 950  
ggtcagcctc gggggccggc ccgtgggtcct ggccgttttt tccacgcca 1000  
gcaacagcat ccctggctcg gctgtctgcg cctttgacct gacacaggtg 1050

gcagctgtgt ttgaaggccg cttccgagag cagaagtccc ccgagtccat 1100  
ctggacgccg gtgccggagg atcaggtgcc tcgaccccgg cccgggtgct 1150  
gcgcagcccc cgggatgcag tacaatgcct ccagcgcctt gccggatgac 1200  
atcctcaact ttgtcaagac ccaccctctg atggacgagg cgggtgccctc 1250  
gctgggcat gcgccctgga tcctgcggac cctgatgagg caccagctga 1300  
ctcgagtggc tgtggacgtg ggagccggcc cctggggcaa ccagaccgtt 1350  
gtcttcttgg gttctgaggc ggggacggtc ctcaagtcc tcgtccggcc 1400  
caatgccagc acctcaggga cgtctgggct cagtgtcttc ctggaggagt 1450  
ttgagaccta ccggccggac aggtgtggac ggcccggcgg tggcgagaca 1500  
gggcagcggc tgctgagctt ggagctggac gcagcttcgg ggggcctgct 1550  
ggctgccttc ccccgctgcg tgggtccgagt gcctgtggct cgctgccagc 1600  
agtactcggg gtgtatgaag aactgtatcg gcagtcagga cccctactgc 1650  
gggtgggccc ccgacggctc ctgcatcttc ctacgcccgg gcaccagagc 1700  
cgcctttgag caggacgtgt ccggggccag cacctcaggc ttaggggact 1750  
gcacaggact cctgcgggcc agcctctccg aggaccgcgc ggggctggtg 1800  
tcggtgaacc tgctggtaac gtcgtcgggtg gcggccttcg tgggtgggagc 1850  
cgtggtgtcc ggcttcagcg tgggctggtt cgtgggcctc cgtgagcggc 1900  
gggagctggc ccggcgcaag gacaaggagg ccatcctggc gcacggggcg 1950  
ggcgaggcgg tgctgagcgt cagccgcctg ggcgagcgca gggcgaggg 2000  
tcccgggggc cggggcgag gcggtggcgg tggcgccggg gttcccccg 2050  
aggccctgct ggcccccctg atgcagaacg gctgggcca ggcacgctg 2100  
ctgcagggcg ggccccacga cctggactcg gggctgctgc ccacgcccga 2150  
gcagacgccg ctgccgcaga agcgcctgcc cactccgcac ccgcaccccc 2200  
acgccttggg cccccgcgc tgggaccacg gccaccccct gctcccggcc 2250  
tccgcttcat cctccctcct gctgctggcg cccgcccggg cccccgagca 2300  
gccccccgcg cctgggggagc cgacccccga cggccgcctc tatgctgcc 2350  
ggcccgggcg cgctcccccac ggcgacttcc cgctcaccac ccacgccagc 2400  
ccggaccgcc ggcgggtggt gtccgcgccc acgggcccct tggaccagc 2450  
ctcagccgcc gatggcctcc cgcggccctg gagcccgccc ccgacgggca 2500

```

gcctgaggag gccactgggc cccacgccc ctccggccgc caccctgcgc 2550
cgcacccaca cgttcaacag cggcgaggcc cggcctgggg accgccaccg 2600
cggctgccac gcccggccgg gcacagactt ggcccacctc ctcccctatg 2650
ggggggcgga caggactgcg cccccgtgc cctaggccgg gggccccccg 2700
atgccttggc agtgccagcc acgggaacca ggagcgagag acggtgccag 2750
aacgccgggg cccggggcaa ctccgagtgg gtgctcaagt cccccccg 2800
accacccgc ggagtggggg gcccctccg ccacaaggaa gcacaaccag 2850
ctcgccctcc ccctaccggg ggccgcagga cgctgagacg gtttgggggt 2900
gggtgggcgg gaggactttg ctatggattt gaggttgacc ttatgcgcgt 2950
aggttttggg ttttttttgc agttttgggt tcttttgcg ttttctaacc 3000
aatgcacaa ctccgttctc ggggtggcgg caggcagggg aggcttggac 3050
gccggtgggg aatggggggc cacagctgca gacctagcc ctccccacc 3100
cctggaaagg tccctcccca acccaggccc ctggcgtgtg tgggtgtgcg 3150
tgctgtgtgc tgccgtgttc gtgtgcaagg ggccggggag gtgggcgtgt 3200
gtgtgcgtgc cagcgaaggc tgctgtgggc gtgtgtgtca agtgggccac 3250
gcgtgcaggg tgtgtgtcca cgagcgacga tcgtggtggc cccagcggcc 3300
tgggcgttgg ctgagccgac gctggggcct ccagaaggcc cgggggtctc 3350
cgagggtgcc gttaggagtt tgaaccccc cactctgca gaggaagcg 3400
gggacaatgc cggggtttca ggcaggagac acgaggagg cctgcccgga 3450
agtcacatcg gcagcagctg tctaaagggc ttgggggcct ggggggcggc 3500
gaaggtgggt ggggccctc tgtaaatacg gcccagggt ggtgagagag 3550
tcccatgcca cccgtcccct tgtgacctcc ccctatgac ctccagctga 3600
ccatgcatgc cacgtggctg gctgggtcct ctgccctctt tggagtttgc 3650
ctccccagc cccctcccca tcaataaaac tctgtttaca accaaaaaaa 3700
aaaaaaaaa aaaaaaaaaa a 3721

```

<210> 35

<211> 888

<212> PRT

<213> Homo Sapien

<400> 35

```

Met Gln Thr Pro Arg Ala Ser Pro Pro Arg Pro Ala Leu Leu Leu
 1             5             10             15

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Leu | Leu | Leu | Leu | Gly | Gly | Ala | His | Gly | Leu | Phe | Pro | Glu | Glu |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Pro | Pro | Pro | Leu | Ser | Val | Ala | Pro | Arg | Asp | Tyr | Leu | Asn | His | Tyr |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Pro | Val | Phe | Val | Gly | Ser | Gly | Pro | Gly | Arg | Leu | Thr | Pro | Ala | Glu |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Gly | Ala | Asp | Asp | Leu | Asn | Ile | Gln | Arg | Val | Leu | Arg | Val | Asn | Arg |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Thr | Leu | Phe | Ile | Gly | Asp | Arg | Asp | Asn | Leu | Tyr | Arg | Val | Glu | Leu |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Glu | Pro | Pro | Thr | Ser | Thr | Glu | Leu | Arg | Tyr | Gln | Arg | Lys | Leu | Thr |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Trp | Arg | Ser | Asn | Pro | Ser | Asp | Ile | Asn | Val | Cys | Arg | Met | Lys | Gly |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Lys | Gln | Glu | Gly | Glu | Cys | Arg | Asn | Phe | Val | Lys | Val | Leu | Leu | Leu |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Arg | Asp | Glu | Ser | Thr | Leu | Phe | Val | Cys | Gly | Ser | Asn | Ala | Phe | Asn |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Pro | Val | Cys | Ala | Asn | Tyr | Ser | Ile | Asp | Thr | Leu | Gln | Pro | Val | Gly |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Asp | Asn | Ile | Ser | Gly | Met | Ala | Arg | Cys | Pro | Tyr | Asp | Pro | Lys | His |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Ala | Asn | Val | Ala | Leu | Phe | Ser | Asp | Gly | Met | Leu | Phe | Thr | Ala | Thr |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Val | Thr | Asp | Phe | Leu | Ala | Ile | Asp | Ala | Val | Ile | Tyr | Arg | Ser | Leu |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Gly | Asp | Arg | Pro | Thr | Leu | Arg | Thr | Val | Lys | His | Asp | Ser | Lys | Trp |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Phe | Lys | Glu | Pro | Tyr | Phe | Val | His | Ala | Val | Glu | Trp | Gly | Ser | His |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Val | Tyr | Phe | Phe | Phe | Arg | Glu | Ile | Ala | Met | Glu | Phe | Asn | Tyr | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Glu | Lys | Val | Val | Val | Ser | Arg | Val | Ala | Arg | Val | Cys | Lys | Asn | Asp |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Val | Gly | Gly | Ser | Pro | Arg | Val | Leu | Glu | Lys | Gln | Trp | Thr | Ser | Phe |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Leu | Lys | Ala | Arg | Leu | Asn | Cys | Ser | Val | Pro | Gly | Asp | Ser | His | Phe |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Tyr | Phe | Asn | Val | Leu | Gln | Ala | Val | Thr | Gly | Val | Val | Ser | Leu | Gly |  |

|                 |                     |                     |     |  |     |
|-----------------|---------------------|---------------------|-----|--|-----|
|                 | 305                 |                     | 310 |  | 315 |
| Gly Arg Pro Val | Val Leu Ala Val Phe | Ser Thr Pro Ser Asn | Ser |  |     |
|                 | 320                 |                     | 325 |  | 330 |
| Ile Pro Gly Ser | Ala Val Cys Ala Phe | Asp Leu Thr Gln Val | Ala |  |     |
|                 | 335                 |                     | 340 |  | 345 |
| Ala Val Phe Glu | Gly Arg Phe Arg Glu | Gln Lys Ser Pro Glu | Ser |  |     |
|                 | 350                 |                     | 355 |  | 360 |
| Ile Trp Thr Pro | Val Pro Glu Asp Gln | Val Pro Arg Pro Arg | Pro |  |     |
|                 | 365                 |                     | 370 |  | 375 |
| Gly Cys Cys Ala | Ala Pro Gly Met Gln | Tyr Asn Ala Ser Ser | Ala |  |     |
|                 | 380                 |                     | 385 |  | 390 |
| Leu Pro Asp Asp | Ile Leu Asn Phe Val | Lys Thr His Pro Leu | Met |  |     |
|                 | 395                 |                     | 400 |  | 405 |
| Asp Glu Ala Val | Pro Ser Leu Gly His | Ala Pro Trp Ile Leu | Arg |  |     |
|                 | 410                 |                     | 415 |  | 420 |
| Thr Leu Met Arg | His Gln Leu Thr Arg | Val Ala Val Asp Val | Gly |  |     |
|                 | 425                 |                     | 430 |  | 435 |
| Ala Gly Pro Trp | Gly Asn Gln Thr Val | Val Phe Leu Gly Ser | Glu |  |     |
|                 | 440                 |                     | 445 |  | 450 |
| Ala Gly Thr Val | Leu Lys Phe Leu Val | Arg Pro Asn Ala Ser | Thr |  |     |
|                 | 455                 |                     | 460 |  | 465 |
| Ser Gly Thr Ser | Gly Leu Ser Val Phe | Leu Glu Glu Phe Glu | Thr |  |     |
|                 | 470                 |                     | 475 |  | 480 |
| Tyr Arg Pro Asp | Arg Cys Gly Arg Pro | Gly Gly Gly Glu Thr | Gly |  |     |
|                 | 485                 |                     | 490 |  | 495 |
| Gln Arg Leu Leu | Ser Leu Glu Leu Asp | Ala Ala Ser Gly Gly | Leu |  |     |
|                 | 500                 |                     | 505 |  | 510 |
| Leu Ala Ala Phe | Pro Arg Cys Val Val | Arg Val Pro Val Ala | Arg |  |     |
|                 | 515                 |                     | 520 |  | 525 |
| Cys Gln Gln Tyr | Ser Gly Cys Met Lys | Asn Cys Ile Gly Ser | Gln |  |     |
|                 | 530                 |                     | 535 |  | 540 |
| Asp Pro Tyr Cys | Gly Trp Ala Pro Asp | Gly Ser Cys Ile Phe | Leu |  |     |
|                 | 545                 |                     | 550 |  | 555 |
| Ser Pro Gly Thr | Arg Ala Ala Phe Glu | Gln Asp Val Ser Gly | Ala |  |     |
|                 | 560                 |                     | 565 |  | 570 |
| Ser Thr Ser Gly | Leu Gly Asp Cys Thr | Gly Leu Leu Arg Ala | Ser |  |     |
|                 | 575                 |                     | 580 |  | 585 |
| Leu Ser Glu Asp | Arg Ala Gly Leu Val | Ser Val Asn Leu Leu | Val |  |     |
|                 | 590                 |                     | 595 |  | 600 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr | Ser | Ser | Val | Ala | Ala | Phe | Val | Val | Gly | Ala | Val | Val | Ser | Gly |  |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |  |
| Phe | Ser | Val | Gly | Trp | Phe | Val | Gly | Leu | Arg | Glu | Arg | Arg | Glu | Leu |  |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |  |
| Ala | Arg | Arg | Lys | Asp | Lys | Glu | Ala | Ile | Leu | Ala | His | Gly | Ala | Gly |  |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |  |
| Glu | Ala | Val | Leu | Ser | Val | Ser | Arg | Leu | Gly | Glu | Arg | Arg | Ala | Gln |  |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |  |
| Gly | Pro | Gly | Gly | Arg | Gly | Gly | Gly | Gly | Gly | Gly | Gly | Ala | Gly | Val |  |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |  |
| Pro | Pro | Glu | Ala | Leu | Leu | Ala | Pro | Leu | Met | Gln | Asn | Gly | Trp | Ala |  |
|     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |     | 690 |  |
| Lys | Ala | Thr | Leu | Leu | Gln | Gly | Gly | Pro | His | Asp | Leu | Asp | Ser | Gly |  |
|     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     | 705 |  |
| Leu | Leu | Pro | Thr | Pro | Glu | Gln | Thr | Pro | Leu | Pro | Gln | Lys | Arg | Leu |  |
|     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |  |
| Pro | Thr | Pro | His | Pro | His | Pro | His | Ala | Leu | Gly | Pro | Arg | Ala | Trp |  |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |  |
| Asp | His | Gly | His | Pro | Leu | Leu | Pro | Ala | Ser | Ala | Ser | Ser | Ser | Leu |  |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |  |
| Leu | Leu | Leu | Ala | Pro | Ala | Arg | Ala | Pro | Glu | Gln | Pro | Pro | Ala | Pro |  |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |  |
| Gly | Glu | Pro | Thr | Pro | Asp | Gly | Arg | Leu | Tyr | Ala | Ala | Arg | Pro | Gly |  |
|     |     |     |     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |  |
| Arg | Ala | Ser | His | Gly | Asp | Phe | Pro | Leu | Thr | Pro | His | Ala | Ser | Pro |  |
|     |     |     |     | 785 |     |     |     |     | 790 |     |     |     |     | 795 |  |
| Asp | Arg | Arg | Arg | Val | Val | Ser | Ala | Pro | Thr | Gly | Pro | Leu | Asp | Pro |  |
|     |     |     |     | 800 |     |     |     |     | 805 |     |     |     |     | 810 |  |
| Ala | Ser | Ala | Ala | Asp | Gly | Leu | Pro | Arg | Pro | Trp | Ser | Pro | Pro | Pro |  |
|     |     |     |     | 815 |     |     |     |     | 820 |     |     |     |     | 825 |  |
| Thr | Gly | Ser | Leu | Arg | Arg | Pro | Leu | Gly | Pro | His | Ala | Pro | Pro | Ala |  |
|     |     |     |     | 830 |     |     |     |     | 835 |     |     |     |     | 840 |  |
| Ala | Thr | Leu | Arg | Arg | Thr | His | Thr | Phe | Asn | Ser | Gly | Glu | Ala | Arg |  |
|     |     |     |     | 845 |     |     |     |     | 850 |     |     |     |     | 855 |  |
| Pro | Gly | Asp | Arg | His | Arg | Gly | Cys | His | Ala | Arg | Pro | Gly | Thr | Asp |  |
|     |     |     |     | 860 |     |     |     |     | 865 |     |     |     |     | 870 |  |
| Leu | Ala | His | Leu | Leu | Pro | Tyr | Gly | Gly | Ala | Asp | Arg | Thr | Ala | Pro |  |
|     |     |     |     | 875 |     |     |     |     | 880 |     |     |     |     | 885 |  |
| Pro | Val | Pro |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 36  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 36  
gaggacctac cggccggaca g 21

<210> 37  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 37  
atacaccgcc agtactgctg gcag 24

<210> 38  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 38  
agacagggca gcggtgctg agcttggagc tggacgcagc tt 42

<210> 39  
<211> 2014  
<212> DNA  
<213> Homo Sapien

<400> 39  
agcaactcaa gttcatcatt gtcctgagag agaggagcag cgcggttctc 50  
ggccgggaca gcagaacgcc aggggaccct cacctgggcg cgccggggca 100  
cgggctttga ttgtcctggg gtcgcggaga cccgcgcgcc tgccctgcac 150  
gccggggcggc aacctttgca gtcgcgttgg ctgctgcgat cggccggcgg 200  
gtccctgcgc aaggctcggc tgcttctgtc cacctcttac acttcttcat 250  
ttatcgggtgg atcatttcga gagtccgtct tgtaaagtgt tggcactttg 300  
ctactttatt gcttctttct ggcgacagtt ccagcactcg ccgagaccgg 350  
cggagaaagg cagctgagcc cggagaagag cgaaatatgg ggaccggggc 400  
taaaagcaga cgtcgtcctt cccgcccgtt atttctatat tcaggcagtg 450



gatacatcag ggaataaatt cacatcttct ccaggcgaaa aggtcttcca 500  
ggtgaaagtc tcagcaccag aggagcaatt cactagagtt ggagtccagg 550  
ttttagaccg aaaagatggg tccttcatag taagatacag aatgtatgca 600  
agctacaaaa atctgaaggt ggaaattaaa ttccaagggc aacatgtggc 650  
caaatcccca tatattttta aagggccggt ttacatgag aactgtgact 700  
gtcctctgca agatagtgcg gcctggctac gggagatgaa ctgccctgaa 750  
accattgctc agattcagag agatctggca catttccctg ctgtggatcc 800  
agaaaagatt gcagtagaaa tcccaaaaag atttggacag aggcagagcc 850  
tatgtcacta caccttaaag gataacaagg tttatatcaa gactcatggt 900  
gaacatgtag gttttagaat tttcatggat gccatactac tttctttgac 950  
tagaaagggtg aagatgccag atgtggagct ctttggttaat ttgggagact 1000  
ggcctttgga aaaaaagaaa tccaattcaa acatccatcc gatcttttcc 1050  
tggtgtggct ccacagattc caaggatata gtgatgccta cgtacgattt 1100  
gactgattct gttctggaaa ccatgggccc ggtaagtctg gatatgatgt 1150  
ccgtgcaagc taacacgggt cctccctggg aaagcaaaaa ttccactgcc 1200  
gtctggagag ggcgagacag ccgcaaagag agactcgagc tggttaaact 1250  
cagtagaaaa caccagaac tcatagacgc tgctttcacc aactttttct 1300  
tctttaaaca cgatgaaaac ctgtatggtc ccattgtgaa acatatttca 1350  
ttttttgatt tcttcaagca taagtatcaa ataaatatcg atggcactgt 1400  
agcagcttat cgcctgccat atttgctagt tggtgacagt gttgtgctga 1450  
agcaggattc catctactat gaacatTTTT acaatgagct gcagccctgg 1500  
aaacactaca ttccagttaa gagcaacctg agcgatctgc tagaaaaact 1550  
taaattgggcg aaagatcacg atgaagaggc caaaaagata gcaaaagcag 1600  
gacaagaatt tgcaagaaat aatctcatgg gcgatgacat attctgttat 1650  
tatttcaaac ttttccagga atatgccaat ttacaagtga gtgagcccca 1700  
aatccgagag ggcattgaaa gggtagaacc acagactgag gacgacctct 1750  
tccttgtac ttgccatagg aaaaagacca aagatgaact ctgatatgca 1800  
aaataacttc tattagaata atgggtgctct gaagactctt cttactaaa 1850  
aagaagaatt tttttaagta ttaattccat ggacaatata aaatctgtgt 1900



gattgtttgc agtatgaaga cacatttcta cttatgcagt attctcatga 1950  
 ctgtacttta aagtacattt ttagaatttt ataataaaaac cacctttatt 2000  
 ttaaaggaaa aaaa 2014

<210> 40  
 <211> 502  
 <212> PRT  
 <213> Homo Sapien

<400> 40  
 Met Phe Gly Thr Leu Leu Leu Tyr Cys Phe Phe Leu Ala Thr Val  
   1                  5                  10                  15  
 Pro Ala Leu Ala Glu Thr Gly Gly Glu Arg Gln Leu Ser Pro Glu  
                   20                  25                  30  
 Lys Ser Glu Ile Trp Gly Pro Gly Leu Lys Ala Asp Val Val Leu  
                   35                  40                  45  
 Pro Ala Arg Tyr Phe Tyr Ile Gln Ala Val Asp Thr Ser Gly Asn  
                   50                  55                  60  
 Lys Phe Thr Ser Ser Pro Gly Glu Lys Val Phe Gln Val Lys Val  
                   65                  70                  75  
 Ser Ala Pro Glu Glu Gln Phe Thr Arg Val Gly Val Gln Val Leu  
                   80                  85                  90  
 Asp Arg Lys Asp Gly Ser Phe Ile Val Arg Tyr Arg Met Tyr Ala  
                   95                  100                  105  
 Ser Tyr Lys Asn Leu Lys Val Glu Ile Lys Phe Gln Gly Gln His  
                   110                  115                  120  
 Val Ala Lys Ser Pro Tyr Ile Leu Lys Gly Pro Val Tyr His Glu  
                   125                  130                  135  
 Asn Cys Asp Cys Pro Leu Gln Asp Ser Ala Ala Trp Leu Arg Glu  
                   140                  145                  150  
 Met Asn Cys Pro Glu Thr Ile Ala Gln Ile Gln Arg Asp Leu Ala  
                   155                  160                  165  
 His Phe Pro Ala Val Asp Pro Glu Lys Ile Ala Val Glu Ile Pro  
                   170                  175                  180  
 Lys Arg Phe Gly Gln Arg Gln Ser Leu Cys His Tyr Thr Leu Lys  
                   185                  190                  195  
 Asp Asn Lys Val Tyr Ile Lys Thr His Gly Glu His Val Gly Phe  
                   200                  205                  210  
 Arg Ile Phe Met Asp Ala Ile Leu Leu Ser Leu Thr Arg Lys Val  
                   215                  220                  225  
 Lys Met Pro Asp Val Glu Leu Phe Val Asn Leu Gly Asp Trp Pro

|                 | 230                 | 235                 | 240 |
|-----------------|---------------------|---------------------|-----|
| Leu Glu Lys Lys | Lys Ser Asn Ser Asn | Ile His Pro Ile Phe | Ser |
|                 | 245                 | 250                 | 255 |
| Trp Cys Gly Ser | Thr Asp Ser Lys Asp | Ile Val Met Pro Thr | Tyr |
|                 | 260                 | 265                 | 270 |
| Asp Leu Thr Asp | Ser Val Leu Glu Thr | Met Gly Arg Val Ser | Leu |
|                 | 275                 | 280                 | 285 |
| Asp Met Met Ser | Val Gln Ala Asn Thr | Gly Pro Pro Trp Glu | Ser |
|                 | 290                 | 295                 | 300 |
| Lys Asn Ser Thr | Ala Val Trp Arg Gly | Arg Asp Ser Arg Lys | Glu |
|                 | 305                 | 310                 | 315 |
| Arg Leu Glu Leu | Val Lys Leu Ser Arg | Lys His Pro Glu Leu | Ile |
|                 | 320                 | 325                 | 330 |
| Asp Ala Ala Phe | Thr Asn Phe Phe Phe | Phe Lys His Asp Glu | Asn |
|                 | 335                 | 340                 | 345 |
| Leu Tyr Gly Pro | Ile Val Lys His Ile | Ser Phe Phe Asp Phe | Phe |
|                 | 350                 | 355                 | 360 |
| Lys His Lys Tyr | Gln Ile Asn Ile Asp | Gly Thr Val Ala Ala | Tyr |
|                 | 365                 | 370                 | 375 |
| Arg Leu Pro Tyr | Leu Leu Val Gly Asp | Ser Val Val Leu Lys | Gln |
|                 | 380                 | 385                 | 390 |
| Asp Ser Ile Tyr | Tyr Glu His Phe Tyr | Asn Glu Leu Gln Pro | Trp |
|                 | 395                 | 400                 | 405 |
| Lys His Tyr Ile | Pro Val Lys Ser Asn | Leu Ser Asp Leu Leu | Glu |
|                 | 410                 | 415                 | 420 |
| Lys Leu Lys Trp | Ala Lys Asp His Asp | Glu Glu Ala Lys Lys | Ile |
|                 | 425                 | 430                 | 435 |
| Ala Lys Ala Gly | Gln Glu Phe Ala Arg | Asn Asn Leu Met Gly | Asp |
|                 | 440                 | 445                 | 450 |
| Asp Ile Phe Cys | Tyr Tyr Phe Lys Leu | Phe Gln Glu Tyr Ala | Asn |
|                 | 455                 | 460                 | 465 |
| Leu Gln Val Ser | Glu Pro Gln Ile Arg | Glu Gly Met Lys Arg | Val |
|                 | 470                 | 475                 | 480 |
| Glu Pro Gln Thr | Glu Asp Asp Leu Phe | Pro Cys Thr Cys His | Arg |
|                 | 485                 | 490                 | 495 |
| Lys Lys Thr Lys | Asp Glu Leu         |                     |     |
|                 | 500                 |                     |     |

<210> 41  
<211> 26

<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Synthetic oligonucleotide probe

<400> 41  
gaaggtggaa attaaattcc aagggc 26

<210> 42  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 42  
cgataagctg ctacagtgcc atcg 24

<210> 43  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 43  
gtgactgtcc tctgcaagat agtgcagcct ggctacggga 40

<210> 44  
<211> 2395  
<212> DNA  
<213> Homo Sapien

<400> 44  
cctggagccg gaagcgcggc tgcagcaggg cgaggctcca ggtgggggtcg 50  
gttccgcata cagcctagcg tgtccacgat gcggctgggc tccgggactt 100  
tcgctacctg ttgcgtagcg atcgaggtgc tagggatcgc ggtcttcctt 150  
cggggattct tcccggctcc cgttcgttcc tctgccagag cggaacacgg 200  
agcggagccc ccagcgcccg aaccctcggc tggagccagt tctaactgga 250  
ccacgctgcc accacctctc ttcagtaaag ttgttattgt tctgatagat 300  
gccttgagag atgattttgt gtttggggtca aagggtgtga aatttatgcc 350  
ctacacaact taccttgtgg aaaaaggagc atctcacagt tttgtggctg 400  
aagcaaagcc acctacagtt actatgcctc gaatcaaggc attgatgacg 450  
gggagccttc ctggctttgt cgacgtcatc aggaacctca attctcctgc 500  
actgctggaa gacagtgtga taagacaagc aaaagcagct ggaaaaagaa 550

tagtctttta tggagatgaa acctgggtta aattattccc aaagcatttt 600  
gtggaatatg atggaacaac ctcatTTTTt gtgtcagatt acacagaggt 650  
ggataataat gtcacgaggc atttggataa agtattaaaa agaggagatt 700  
gggacatatt aatcctccac tacctggggc tggaccacat tggccacatt 750  
tcagggccca acagccccct gattgggcag aagctgagcg agatggacag 800  
cgtgctgatg aagatccaca cctcactgca gtcgaaggag agagagacgc 850  
ctttacccaa tttgctgggt ctttgtgggt accatggcat gtctgaaaca 900  
ggaagtcacg gggcctcctc caccgaggag gtgaatacac ctctgatttt 950  
aatcagttct gcgtttgaaa ggaaaccggt tgatatccga catccaaagc 1000  
acgtccaata gacggatgtg gctgcgacac tggcgatagc acttggctta 1050  
ccgattccaa aagacagtgt agggagcctc ctattcccag ttgtggaagg 1100  
aagaccaatg agagagcagt tgagattttt acatttgaat acagtgcagc 1150  
ttagtaaact gttgcaagag aatgtgccgt catatgaaaa agatcctggg 1200  
tttgagcagt ttaaaatgtc agaaagattg catgggaact ggatcagact 1250  
gtacttggag gaaaagcatt cagaagtcct attcaacctg ggctccaagg 1300  
ttctcaggca gtacctggat gctctgaaga cgctgagctt gtccctgagt 1350  
gcacaagtgg ccagttctc accctgctcc tgctcagcgt cccacaggca 1400  
ctgcacagaa aggctgagct ggaagtccca ctgtcatctc ctgggttttc 1450  
tctgctcttt tatttgggtga tcttgggtct ttcggccggt cacgtcattg 1500  
tgtgcacctc agctgaaagt tcgtgctact tctgtggcct ctcgtggctg 1550  
gcggcaggct gcctttcgtt taccagactc tgggtgaaca cctgggtgtg 1600  
gccaagtgtc ggcagtgcc tggacagggg gcctcaggga aggacgtgga 1650  
gcagccttat cccaggcctc tgggtgtccc gacacagggt ttcacatctg 1700  
tgctgtcagg tcagatgcct cagttcttgg aaagctaggt tcctgcgact 1750  
gttaccaagg tgattgtaaa gagctggcgg tcacagagga acaagcccc 1800  
cagctgaggg ggtgtgtgaa tcggacagcc tcccagcaga ggtgtgggag 1850  
ctgcagctga gggaagaaga gacaatcggc ctggacactc aggagggtca 1900  
aaaggagact tggtcgcacc actcatcctg ccacccccag aatgcatcct 1950  
gcctcatcag gtccagattt ctttccaagg cggacgtttt ctgttggaat 2000

tcttagtcct tggcctcgga caccttcatt cgtagctgg ggagtgggtgg 2050  
 tgaggcagtg aagaagaggc ggatgggtcac actcagatcc acagagccca 2100  
 ggatcaaggg acccactgca gtggcagcag gactgttggg cccccacccc 2150  
 aaccctgcac agccctcatc ccctcttggc ttgagccgtc agaggccctg 2200  
 tgctgagtgt ctgaccgaga cactcacagc tttgtcatca gggcacaggc 2250  
 ttctcggag ccaggatgat ctgtgccacg cttgcacctc gggcccatct 2300  
 gggctcatgc tctctctcct gctattgaat tagtacctag ctgcacacag 2350  
 tatgtagtta ccaaaagaat aaacggcaat aattgagaaa aaaaa 2395

<210> 45  
 <211> 310  
 <212> PRT  
 <213> Homo Sapien

<400> 45  
 Met Arg Leu Gly Ser Gly Thr Phe Ala Thr Cys Cys Val Ala Ile  
 1 5 10 15  
 Glu Val Leu Gly Ile Ala Val Phe Leu Arg Gly Phe Phe Pro Ala  
 20 25 30  
 Pro Val Arg Ser Ser Ala Arg Ala Glu His Gly Ala Glu Pro Pro  
 35 40 45  
 Ala Pro Glu Pro Ser Ala Gly Ala Ser Ser Asn Trp Thr Thr Leu  
 50 55 60  
 Pro Pro Pro Leu Phe Ser Lys Val Val Ile Val Leu Ile Asp Ala  
 65 70 75  
 Leu Arg Asp Asp Phe Val Phe Gly Ser Lys Gly Val Lys Phe Met  
 80 85 90  
 Pro Tyr Thr Thr Tyr Leu Val Glu Lys Gly Ala Ser His Ser Phe  
 95 100 105  
 Val Ala Glu Ala Lys Pro Pro Thr Val Thr Met Pro Arg Ile Lys  
 110 115 120  
 Ala Leu Met Thr Gly Ser Leu Pro Gly Phe Val Asp Val Ile Arg  
 125 130 135  
 Asn Leu Asn Ser Pro Ala Leu Leu Glu Asp Ser Val Ile Arg Gln  
 140 145 150  
 Ala Lys Ala Ala Gly Lys Arg Ile Val Phe Tyr Gly Asp Glu Thr  
 155 160 165  
 Trp Val Lys Leu Phe Pro Lys His Phe Val Glu Tyr Asp Gly Thr  
 170 175 180

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Ser | Phe | Phe | Val | Ser | Asp | Tyr | Thr | Glu | Val | Asp | Asn | Asn | Val |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Thr | Arg | His | Leu | Asp | Lys | Val | Leu | Lys | Arg | Gly | Asp | Trp | Asp | Ile |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Leu | Ile | Leu | His | Tyr | Leu | Gly | Leu | Asp | His | Ile | Gly | His | Ile | Ser |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Gly | Pro | Asn | Ser | Pro | Leu | Ile | Gly | Gln | Lys | Leu | Ser | Glu | Met | Asp |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Val | Leu | Met | Lys | Ile | His | Thr | Ser | Leu | Gln | Ser | Lys | Glu | Arg |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Glu | Thr | Pro | Leu | Pro | Asn | Leu | Leu | Val | Leu | Cys | Gly | Asp | His | Gly |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Met | Ser | Glu | Thr | Gly | Ser | His | Gly | Ala | Ser | Ser | Thr | Glu | Glu | Val |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Asn | Thr | Pro | Leu | Ile | Leu | Ile | Ser | Ser | Ala | Phe | Glu | Arg | Lys | Pro |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Gly | Asp | Ile | Arg | His | Pro | Lys | His | Val | Gln |     |     |     |     |     |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     |     |

<210> 46

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 46

cgggactttc gctacctgtt gc 22

<210> 47

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 47

catcatattc cacaaaatgc tttggg 26

<210> 48

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 48

ccttcgggga ttcttcccgg ctcccgttcg ttcctctg 38

<210> 49

<211> 918

<212> DNA

<213> Homo Sapien

<400> 49

agccaggcag cacatcacag cgggaggagc tgtcccaggt ggcccagctc 50  
agcaatggca atgggggtcc ccagagtcac tctgctctgc ctctttgggg 100  
ctgcgctctg cctgacaggg tcccaagccc tgcagtgcta cagctttgag 150  
cacacctact ttggcccctt tgacctcagg gccatgaagc tgcccagcat 200  
ctcctgtcct catgagtgtt ttgaggctat cctgtctctg gacaccgggt 250  
atcgcgcgcc ggtgaccctg gtgcggaagg gctgctggac cgggcctcct 300  
gcggggccaga cgcaatcgaa cccggacgcg ctgccgccag actactcggg 350  
ggtgcgcggc tgcacaactg acaaatgcaa cgcccacctc atgactcatg 400  
acgccctccc caacctgagc caagcaccgc acccgccgac gctcagcggc 450  
gccgagtgtt acgcctgtat cgggggtccac caggatgact gcgctatcgg 500  
cagggtcccga cgagtccagt gtcaccagga ccagaccgcc tgcttccagg 550  
gcagtggcag aatgacagtt ggcaatttct cagtccctgt gtacatcaga 600  
acctgccacc ggccctcctg caccaccgag ggcaccacca gccctggac 650  
agccatcgac ctccagggtt cctgctgtga ggggtacctc tgcaacagga 700  
aatccatgac ccagcccttc accagtgttt cagccaccac ccctccccga 750  
gcactacagg tcctggccct gtcctcccca gtcctcctgc tgggtggggct 800  
ctcagcatag accgcccctc caggatgctg gggacagggc tcacacacct 850  
cattcttgct gcttcagccc ctatcacata gctcactgga aaatgatgtt 900  
aaagtaagaa ttgcaaaa 918

<210> 50

<211> 251

<212> PRT

<213> Homo Sapien

<400> 50

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Met | Gly | Val | Pro | Arg | Val | Ile | Leu | Leu | Cys | Leu | Phe | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ala | Ala | Leu | Cys | Leu | Thr | Gly | Ser | Gln | Ala | Leu | Gln | Cys | Tyr | Ser |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Glu | His | Thr | Tyr | Phe | Gly | Pro | Phe | Asp | Leu | Arg | Ala | Met | Lys | 35  | 40  | 45  |
| Leu | Pro | Ser | Ile | Ser | Cys | Pro | His | Glu | Cys | Phe | Glu | Ala | Ile | Leu | 50  | 55  | 60  |
| Ser | Leu | Asp | Thr | Gly | Tyr | Arg | Ala | Pro | Val | Thr | Leu | Val | Arg | Lys | 65  | 70  | 75  |
| Gly | Cys | Trp | Thr | Gly | Pro | Pro | Ala | Gly | Gln | Thr | Gln | Ser | Asn | Pro | 80  | 85  | 90  |
| Asp | Ala | Leu | Pro | Pro | Asp | Tyr | Ser | Val | Val | Arg | Gly | Cys | Thr | Thr | 95  | 100 | 105 |
| Asp | Lys | Cys | Asn | Ala | His | Leu | Met | Thr | His | Asp | Ala | Leu | Pro | Asn | 110 | 115 | 120 |
| Leu | Ser | Gln | Ala | Pro | Asp | Pro | Pro | Thr | Leu | Ser | Gly | Ala | Glu | Cys | 125 | 130 | 135 |
| Tyr | Ala | Cys | Ile | Gly | Val | His | Gln | Asp | Asp | Cys | Ala | Ile | Gly | Arg | 140 | 145 | 150 |
| Ser | Arg | Arg | Val | Gln | Cys | His | Gln | Asp | Gln | Thr | Ala | Cys | Phe | Gln | 155 | 160 | 165 |
| Gly | Ser | Gly | Arg | Met | Thr | Val | Gly | Asn | Phe | Ser | Val | Pro | Val | Tyr | 170 | 175 | 180 |
| Ile | Arg | Thr | Cys | His | Arg | Pro | Ser | Cys | Thr | Thr | Glu | Gly | Thr | Thr | 185 | 190 | 195 |
| Ser | Pro | Trp | Thr | Ala | Ile | Asp | Leu | Gln | Gly | Ser | Cys | Cys | Glu | Gly | 200 | 205 | 210 |
| Tyr | Leu | Cys | Asn | Arg | Lys | Ser | Met | Thr | Gln | Pro | Phe | Thr | Ser | Ala | 215 | 220 | 225 |
| Ser | Ala | Thr | Thr | Pro | Pro | Arg | Ala | Leu | Gln | Val | Leu | Ala | Leu | Leu | 230 | 235 | 240 |
| Leu | Pro | Val | Leu | Leu | Leu | Val | Gly | Leu | Ser | Ala |     |     |     |     | 245 | 250 |     |

<210> 51  
 <211> 3288  
 <212> DNA  
 <213> Homo Sapien

<400> 51  
 cccacgcgtc cgggacagat gaacttaaaa gagaagcttt agctgccaaa 50  
 gattgggaaa gggaaaggac aaaaaagacc cctgggctac acggcgtagg 100  
 tgcagggttt cctactgctg ttcttttatg ctgggagctg tggctgtaac 150  
 caactaggaa ataacgtatg cagcagctat ggctgtcaga gagttgtgct 200



tcccaagaca aaggcaagtc ctgtttcttt ttcttttttg gggagtgtcc 250  
ttggcagggt ctgggttttg acgttattcg gtgactgagg aaacagagaa 300  
aggatccttt gtggtcaatc tggcaaagga tctgggacta gcagaggggg 350  
agctggctgc aaggggaacc aggggtggtt ccgatgataa caaacaatac 400  
ctgctcctgg attcacatac cgggaatttg ctacaaatg agaaactgga 450  
ccgagagaag ctgtgtggcc ctaaagagcc ctgtatgctg tatttccaaa 500  
ttttaatgga tgatcccttt cagatttacc gggctgagct gagagtcagg 550  
gatataaatg atcacgcgcc agtatttcag gacaaagaaa cagtcttaaa 600  
aatatcagaa aatacagctg aagggacagc atttagacta gaaagagcac 650  
aggatccaga tggaggactt aacggtatcc aaaactacac gatcagcccc 700  
aactcttttt tccatattaa cattagtggc ggtgatgaag gcatgatata 750  
tccagagcta gtgttggaca aagcactgga tcgggaggag cagggagagc 800  
tcagcttaac cctcacagcg ctggatggtg ggtctccatc caggtctggg 850  
acctctactg tacgcctcgt tgtcttggac gtcaatgaca atgccccaca 900  
gtttgcccag gctctgtatg agaccaggc tccagaaaac agccccattg 950  
ggttccttat tgttaaggta tgggcagaag atgtagactc tggagtcaac 1000  
gcggaagtat cctattcatt ttttgatgcc tcagaaaata ttcgaacgac 1050  
ctttcaaate aatccttttt ctggggaaat ctttctcaga gaattgcttg 1100  
attatgagtt agtaaattct tacaaaataa atatacaggc aatggacggg 1150  
ggaggccttt ctgcaagatg tagggtttta gtggaagtat tggacaccaa 1200  
tgacaatccc cctgaactga tcgtatcatc attttccaac tctgttgctg 1250  
agaattctcc tgagacgccg ctggctgttt ttaagattaa tgacagagac 1300  
tctggagaaa atggaaagat ggtttgctac attcaagaga atctgccatt 1350  
cctactaaaa ctttctgttg agaattttta catcctaatt acagaaggcg 1400  
cgctggacag agagatcaga gccgagtaca acatcactat caccgtcact 1450  
gacttgggga caccaggtc gaaaaccgag cacaacataa cggtcctggg 1500  
ctccgacgtc aatgacaacg ccccgccctt caccacaacc tcctacaccc 1550  
tgttcgtccg cgagaacaac agccccgcc tgcacatcg cagcgtcagc 1600  
gccacagaca gagactcggg caccaacgcc caggtcacct actcgtgct 1650

gccgccccaa gaccgcacc tgcccctcgc ctccctgggc tccatcaacg 1700  
 cggacaacgg ccacctgttc gccctcaggt cgctggacta cgaggccctg 1750  
 caggctttcg agttccgcgt gggcgccaca gaccgcggct ccccgcgct 1800  
 gagcagagag gcgctgggtgc gcgtgctggt gctggacgcc aacgacaact 1850  
 cgcccttcgt gctgtaccgc ctgcagaacg gctccgcgcc ctgcaccgag 1900  
 ctgggtgccc gggcgggcca gccgggctac ctgggtgacca aggtgggtggc 1950  
 ggtggacggc gactcggggc agaacgcctg gctgtcgtac cagctgctca 2000  
 aggccacgga gcccgggctg ttcgggtgtgt gggcgacaaa tggggagggtg 2050  
 cgcaccgcca ggctgctgag cgagcgcgac gcagccaagc acaggctcgt 2100  
 ggtgcttgtc aaggacaatg gcgagcctcc tcgctcggcc accgccacgc 2150  
 tgcacttgtt cctgggtggac ggcttctccc agccctacct gcctctccc 2200  
 gaggcggccc cggcccaggc ccaggccgag gccgacttgc tcaccgtcta 2250  
 cctgggtgggtg gcgttggcct cgggtgtcttc gctcttcctc ctctcgggtg 2300  
 tcctgttcgt ggcgggtgcgg ctgtgcagga ggagcagggc ggccctcgggtg 2350  
 ggtcgtctgt cgggtgcccga gggtcctttt ccagggcctc tgggtggacgt 2400  
 gaggggcgct gagaccctgt cccagagcta ccagtatgag gtgtgtctga 2450  
 cgggaggccc cgggaccagt gagttcaagt tcttgaaacc agttatttcg 2500  
 gatattcagg cacaggggccc tgggaggaag ggtgaagaaa attccacctt 2550  
 ccgaaatagc tttggattta atattcagta aagtctgttt ttagtttcat 2600  
 atacttttgg tgtgttacat agccatgttt ctattagttt actttttaa 2650  
 ctcaaattta agttattatg caacttcaag cattattttc aagtagtata 2700  
 cccctgtggt tttacaatgt ttcattcattt ttttgcatta ataacaactg 2750  
 ggtttaattt aatgagtatt tttttctaaa tgatagtgtt aaggttttta 2800  
 ttctttccaa ctgcccagg aattaattac tattatatct cattacagaa 2850  
 atctgagggt ttgattcatt tcagagcttg catctcatga ttctaatac 2900  
 ttctgtctat agtgtacttg ctctatttaa gaaggcatat ctacatttcc 2950  
 aaactcattc taacattcta tatattcgtg tttgaaaacc atgtcattta 3000  
 tttctacatc atgtatttaa aaagaaatat ttctctacta ctatgctcat 3050  
 gacaaaatga aacaaagcat attgtgagca atactgaaca tcaataatac 3100

ccttagttta tataacttatt attttatctt taagcatgct acttttactt 3150  
 ggccaatatt ttcttatggt aacttttgct gatgtataaa acagactatg 3200  
 ccttataatt gaaataaaat tataatctgc ctgaaaatga ataaaaataa 3250  
 aacattttga aatgtgaaaa aaaaaaaaaa aaaaaaaaaa 3288

<210> 52  
 <211> 800  
 <212> PRT  
 <213> Homo Sapien

<400> 52  
 Met Ala Val Arg Glu Leu Cys Phe Pro Arg Gln Arg Gln Val Leu  
 1 5 10 15  
 Phe Leu Phe Leu Phe Trp Gly Val Ser Leu Ala Gly Ser Gly Phe  
 20 25 30  
 Gly Arg Tyr Ser Val Thr Glu Glu Thr Glu Lys Gly Ser Phe Val  
 35 40 45  
 Val Asn Leu Ala Lys Asp Leu Gly Leu Ala Glu Gly Glu Leu Ala  
 50 55 60  
 Ala Arg Gly Thr Arg Val Val Ser Asp Asp Asn Lys Gln Tyr Leu  
 65 70 75  
 Leu Leu Asp Ser His Thr Gly Asn Leu Leu Thr Asn Glu Lys Leu  
 80 85 90  
 Asp Arg Glu Lys Leu Cys Gly Pro Lys Glu Pro Cys Met Leu Tyr  
 95 100 105  
 Phe Gln Ile Leu Met Asp Asp Pro Phe Gln Ile Tyr Arg Ala Glu  
 110 115 120  
 Leu Arg Val Arg Asp Ile Asn Asp His Ala Pro Val Phe Gln Asp  
 125 130 135  
 Lys Glu Thr Val Leu Lys Ile Ser Glu Asn Thr Ala Glu Gly Thr  
 140 145 150  
 Ala Phe Arg Leu Glu Arg Ala Gln Asp Pro Asp Gly Gly Leu Asn  
 155 160 165  
 Gly Ile Gln Asn Tyr Thr Ile Ser Pro Asn Ser Phe Phe His Ile  
 170 175 180  
 Asn Ile Ser Gly Gly Asp Glu Gly Met Ile Tyr Pro Glu Leu Val  
 185 190 195  
 Leu Asp Lys Ala Leu Asp Arg Glu Glu Gln Gly Glu Leu Ser Leu  
 200 205 210  
 Thr Leu Thr Ala Leu Asp Gly Gly Ser Pro Ser Arg Ser Gly Thr  
 215 220 225

|                 |                     |                         |     |     |     |
|-----------------|---------------------|-------------------------|-----|-----|-----|
| Ser Thr Val Arg | Ile Val Val Leu Asp | Val Asn Asp Asn Ala Pro | 230 | 235 | 240 |
| Gln Phe Ala Gln | Ala Leu Tyr Glu Thr | Gln Ala Pro Glu Asn Ser | 245 | 250 | 255 |
| Pro Ile Gly Phe | Leu Ile Val Lys Val | Trp Ala Glu Asp Val Asp | 260 | 265 | 270 |
| Ser Gly Val Asn | Ala Glu Val Ser Tyr | Ser Phe Phe Asp Ala Ser | 275 | 280 | 285 |
| Glu Asn Ile Arg | Thr Thr Phe Gln Ile | Asn Pro Phe Ser Gly Glu | 290 | 295 | 300 |
| Ile Phe Leu Arg | Glu Leu Leu Asp Tyr | Glu Leu Val Asn Ser Tyr | 305 | 310 | 315 |
| Lys Ile Asn Ile | Gln Ala Met Asp Gly | Gly Gly Leu Ser Ala Arg | 320 | 325 | 330 |
| Cys Arg Val Leu | Val Glu Val Leu Asp | Thr Asn Asp Asn Pro Pro | 335 | 340 | 345 |
| Glu Leu Ile Val | Ser Ser Phe Ser Asn | Ser Val Ala Glu Asn Ser | 350 | 355 | 360 |
| Pro Glu Thr Pro | Leu Ala Val Phe Lys | Ile Asn Asp Arg Asp Ser | 365 | 370 | 375 |
| Gly Glu Asn Gly | Lys Met Val Cys Tyr | Ile Gln Glu Asn Leu Pro | 380 | 385 | 390 |
| Phe Leu Leu Lys | Pro Ser Val Glu Asn | Phe Tyr Ile Leu Ile Thr | 395 | 400 | 405 |
| Glu Gly Ala Leu | Asp Arg Glu Ile Arg | Ala Glu Tyr Asn Ile Thr | 410 | 415 | 420 |
| Ile Thr Val Thr | Asp Leu Gly Thr Pro | Arg Leu Lys Thr Glu His | 425 | 430 | 435 |
| Asn Ile Thr Val | Leu Val Ser Asp Val | Asn Asp Asn Ala Pro Ala | 440 | 445 | 450 |
| Phe Thr Gln Thr | Ser Tyr Thr Leu Phe | Val Arg Glu Asn Asn Ser | 455 | 460 | 465 |
| Pro Ala Leu His | Ile Gly Ser Val Ser | Ala Thr Asp Arg Asp Ser | 470 | 475 | 480 |
| Gly Thr Asn Ala | Gln Val Thr Tyr Ser | Leu Leu Pro Pro Gln Asp | 485 | 490 | 495 |
| Pro His Leu Pro | Leu Ala Ser Leu Val | Ser Ile Asn Ala Asp Asn | 500 | 505 | 510 |
| Gly His Leu Phe | Ala Leu Arg Ser Leu | Asp Tyr Glu Ala Leu Gln |     |     |     |

| 515                                 | 520                 | 525 |
|-------------------------------------|---------------------|-----|
| Ala Phe Glu Phe Arg Val Gly Ala Thr | Asp Arg Gly Ser Pro | Ala |
| 530                                 | 535                 | 540 |
| Leu Ser Arg Glu Ala Leu Val Arg Val | Leu Val Leu Asp Ala | Asn |
| 545                                 | 550                 | 555 |
| Asp Asn Ser Pro Phe Val Leu Tyr Pro | Leu Gln Asn Gly Ser | Ala |
| 560                                 | 565                 | 570 |
| Pro Cys Thr Glu Leu Val Pro Arg Ala | Ala Glu Pro Gly Tyr | Leu |
| 575                                 | 580                 | 585 |
| Val Thr Lys Val Val Ala Val Asp Gly | Asp Ser Gly Gln Asn | Ala |
| 590                                 | 595                 | 600 |
| Trp Leu Ser Tyr Gln Leu Leu Lys Ala | Thr Glu Pro Gly Leu | Phe |
| 605                                 | 610                 | 615 |
| Gly Val Trp Ala His Asn Gly Glu Val | Arg Thr Ala Arg Leu | Leu |
| 620                                 | 625                 | 630 |
| Ser Glu Arg Asp Ala Ala Lys His Arg | Leu Val Val Leu Val | Lys |
| 635                                 | 640                 | 645 |
| Asp Asn Gly Glu Pro Pro Arg Ser Ala | Thr Ala Thr Leu His | Leu |
| 650                                 | 655                 | 660 |
| Leu Leu Val Asp Gly Phe Ser Gln Pro | Tyr Leu Pro Leu Pro | Glu |
| 665                                 | 670                 | 675 |
| Ala Ala Pro Ala Gln Ala Gln Ala Glu | Ala Asp Leu Leu Thr | Val |
| 680                                 | 685                 | 690 |
| Tyr Leu Val Val Ala Leu Ala Ser Val | Ser Ser Leu Phe Leu | Leu |
| 695                                 | 700                 | 705 |
| Ser Val Leu Leu Phe Val Ala Val Arg | Leu Cys Arg Arg Ser | Arg |
| 710                                 | 715                 | 720 |
| Ala Ala Ser Val Gly Arg Cys Ser Val | Pro Glu Gly Pro Phe | Pro |
| 725                                 | 730                 | 735 |
| Gly His Leu Val Asp Val Arg Gly Ala | Glu Thr Leu Ser Gln | Ser |
| 740                                 | 745                 | 750 |
| Tyr Gln Tyr Glu Val Cys Leu Thr Gly | Gly Pro Gly Thr Ser | Glu |
| 755                                 | 760                 | 765 |
| Phe Lys Phe Leu Lys Pro Val Ile Ser | Asp Ile Gln Ala Gln | Gly |
| 770                                 | 775                 | 780 |
| Pro Gly Arg Lys Gly Glu Glu Asn Ser | Thr Phe Arg Asn Ser | Phe |
| 785                                 | 790                 | 795 |
| Gly Phe Asn Ile Gln                 |                     |     |
| 800                                 |                     |     |

<210> 53  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 53  
ctggggagtg tccttggcag gttc 24

<210> 54  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 54  
cagcatacag ggctcttttag ggcacac 27

<210> 55  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 55  
cggtgactga ggaaacagag aaaggatcct ttgtggtcaa tctggc 46

<210> 56  
<211> 2242  
<212> DNA  
<213> Homo Sapien

<220>  
<221> unsure  
<222> 2181  
<223> unknown base

<400> 56  
gaatgaatac ctccgaagcc gctttgttct ccagatgtga atagctccac 50  
tataccagcc tcgtcttcct tccgggggac aacgtgggtc agggcacaga 100  
gagatattta atgtcaccct cttgggggctt tcatgggact ccctctgcca 150  
catttttttg aggttgggaa agttgctaga ggcttcagaa ctccagccta 200  
atggatccca aactcgggag aatggctgcg tccctgctgg ctgtgctgct 250  
gctgctgctg gagcgcgga tggttctctc accctccccg cccccggcgc 300  
tgttagagaa agtcttccag tacattgacc tccatcagga tgaatttgct 350

cagacgctga aggagtgggt ggccatcgag agcgactctg tccagcctgt 400  
gcctcgcttc agacaagagc tcttcagaat gatggccgtg gctgcggaca 450  
cgctgcagcg cctggggggcc cgtgtggcct cggtggacat gggtcctcag 500  
cagctgcccg atggtcagag tcttccaata cctcccgtca tcctggccga 550  
actggggagc gatcccacga aaggcaccgt gtgcttctac ggccacttgg 600  
acgtgcagcc tgctgaccgg ggcgatgggt ggctcacgga cccctatgtg 650  
ctgacggagg tagacgggaa actttatgga cgaggagcga ccgacaacaa 700  
aggccctgtc ttggcttgga tcaatgctgt gagcgccttc agagccctgg 750  
agcaagatct tcctgtgaat atcaaattca tcattgaggg gatggaagag 800  
gctggctctg ttgccctgga ggaacttgtg gaaaaagaaa aggaccgatt 850  
cttctctgggt gtggactaca ttgtaatttc agataacctg tggatcagcc 900  
aaaggaagcc agcaatcact tatggaaccc gggggaacag ctacttcatg 950  
gtggaggtga aatgcagaga ccaggatttt cactcaggaa cctttgggtg 1000  
catccttcat gaaccaatgg ctgatctgggt tgctcttctc ggtagcctgg 1050  
tagactcgtc tggtcatatc ctggtccttg gaatctatga tgaagtgggt 1100  
cctcttacag aagaggaaat aaatacatac aaagccatcc atctagacct 1150  
agaagaatac cggaatagca gccgggttga gaaatttctg ttcgatacta 1200  
aggaggagat tctaatgcac ctctggaggt acccatctct ttctattcat 1250  
gggatcgagg gcgcgtttga tgagcctgga actaaaacag tcataacctg 1300  
ccgagttata ggaaaatttt caatccgtct agtccctcac atgaatgtgt 1350  
ctgcggtgga aaaacaggtg acacgacatc ttgaagatgt gttctccaaa 1400  
agaaatagtt ccaacaagat gggtgtttcc atgactctag gactacaccc 1450  
gtggattgca aatattgatg acaccagta tctcgcagca aaaagagcga 1500  
tcagaacagt gtttggaaca gaaccagata tgatccggga tggatccacc 1550  
attccaattg ccaaaatggt ccaggagatc gtccacaaga gcgtgggtgct 1600  
aattccgctg ggagctgttg atgatggaga acattcgcag aatgagaaaa 1650  
tcaacaggtg gaactacata gagggaaacca aattatttgc tgcctttttc 1700  
ttagagatgg ccagctcca ttaatcacia gaaccttcta gtctgatctg 1750  
atccactgac agattcacct cccccacatc cctagacagg gatggaatgt 1800

```

aaatatccag agaatttggg tctagtatag tacattttcc cttccattta 1850
aaatgtcttg ggatatctgg atcagtaata aaatatttca aaggcacaga 1900
tggtggaaat ggtttaaggt cccccactgc acaccttcct caagtcatag 1950
ctgcttgacg caacttgatt tccccaagtc ctgtgcaata gccccaggat 2000
tggattcctt ccaacctttt agcatatctc caaccttgca atttgattgg 2050
cataatcact ccggtttgct ttctaggtcc tcaagtgtc gtgacacata 2100
atcattccat ccaatgatcg cctttgcttt accactcttt ccttttatct 2150
tattaataaa aatgttggtc tccaccactg nctcccaaaa aaaaaaaaaa 2200
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 2242

```

```

<210> 57
<211> 507
<212> PRT
<213> Homo Sapien

```

```

<400> 57
Met Asp Pro Lys Leu Gly Arg Met Ala Ala Ser Leu Leu Ala Val
 1          5          10          15
Leu Leu Leu Leu Leu Glu Arg Gly Met Phe Ser Ser Pro Ser Pro
          20          25          30
Pro Pro Ala Leu Leu Glu Lys Val Phe Gln Tyr Ile Asp Leu His
          35          40          45
Gln Asp Glu Phe Val Gln Thr Leu Lys Glu Trp Val Ala Ile Glu
          50          55          60
Ser Asp Ser Val Gln Pro Val Pro Arg Phe Arg Gln Glu Leu Phe
          65          70          75
Arg Met Met Ala Val Ala Ala Asp Thr Leu Gln Arg Leu Gly Ala
          80          85          90
Arg Val Ala Ser Val Asp Met Gly Pro Gln Gln Leu Pro Asp Gly
          95          100          105
Gln Ser Leu Pro Ile Pro Pro Val Ile Leu Ala Glu Leu Gly Ser
          110          115          120
Asp Pro Thr Lys Gly Thr Val Cys Phe Tyr Gly His Leu Asp Val
          125          130          135
Gln Pro Ala Asp Arg Gly Asp Gly Trp Leu Thr Asp Pro Tyr Val
          140          145          150
Leu Thr Glu Val Asp Gly Lys Leu Tyr Gly Arg Gly Ala Thr Asp
          155          160          165
Asn Lys Gly Pro Val Leu Ala Trp Ile Asn Ala Val Ser Ala Phe

```



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Arg | Ala | Leu | Glu | Gln | Asp | Leu | Pro | Val | Asn | Ile | Lys | Phe | Ile | Ile |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Glu | Gly | Met | Glu | Glu | Ala | Gly | Ser | Val | Ala | Leu | Glu | Glu | Leu | Val |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Glu | Lys | Glu | Lys | Asp | Arg | Phe | Phe | Ser | Gly | Val | Asp | Tyr | Ile | Val |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Ile | Ser | Asp | Asn | Leu | Trp | Ile | Ser | Gln | Arg | Lys | Pro | Ala | Ile | Thr |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Tyr | Gly | Thr | Arg | Gly | Asn | Ser | Tyr | Phe | Met | Val | Glu | Val | Lys | Cys |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Arg | Asp | Gln | Asp | Phe | His | Ser | Gly | Thr | Phe | Gly | Gly | Ile | Leu | His |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Glu | Pro | Met | Ala | Asp | Leu | Val | Ala | Leu | Leu | Gly | Ser | Leu | Val | Asp |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Ser | Ser | Gly | His | Ile | Leu | Val | Pro | Gly | Ile | Tyr | Asp | Glu | Val | Val |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Pro | Leu | Thr | Glu | Glu | Glu | Ile | Asn | Thr | Tyr | Lys | Ala | Ile | His | Leu |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Asp | Leu | Glu | Glu | Tyr | Arg | Asn | Ser | Ser | Arg | Val | Glu | Lys | Phe | Leu |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Phe | Asp | Thr | Lys | Glu | Glu | Ile | Leu | Met | His | Leu | Trp | Arg | Tyr | Pro |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Ser | Leu | Ser | Ile | His | Gly | Ile | Glu | Gly | Ala | Phe | Asp | Glu | Pro | Gly |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Thr | Lys | Thr | Val | Ile | Pro | Gly | Arg | Val | Ile | Gly | Lys | Phe | Ser | Ile |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Arg | Leu | Val | Pro | His | Met | Asn | Val | Ser | Ala | Val | Glu | Lys | Gln | Val |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Thr | Arg | His | Leu | Glu | Asp | Val | Phe | Ser | Lys | Arg | Asn | Ser | Ser | Asn |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| Lys | Met | Val | Val | Ser | Met | Thr | Leu | Gly | Leu | His | Pro | Trp | Ile | Ala |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |
| Asn | Ile | Asp | Asp | Thr | Gln | Tyr | Leu | Ala | Ala | Lys | Arg | Ala | Ile | Arg |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |  |
| Thr | Val | Phe | Gly | Thr | Glu | Pro | Asp | Met | Ile | Arg | Asp | Gly | Ser | Thr |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |  |
| Ile | Pro | Ile | Ala | Lys | Met | Phe | Gln | Glu | Ile | Val | His | Lys | Ser | Val |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |  |

Val Leu Ile Pro Leu Gly Ala Val Asp Asp Gly Glu His Ser Gln  
 470 475 480

Asn Glu Lys Ile Asn Arg Trp Asn Tyr Ile Glu Gly Thr Lys Leu  
 485 490 495

Phe Ala Ala Phe Phe Leu Glu Met Ala Gln Leu His  
 500 505

<210> 58  
 <211> 1470  
 <212> DNA  
 <213> Homo Sapien

<400> 58  
 ctcggtctgga tttaaggttg ccgctagccg cctgggaatt taagggaccc 50  
 acactacctt cccgaagttg aaggcaagcg gtgattgttt gtagacggcg 100  
 ctttgtcatg ggacctgtgc ggttgggaat attgcttttc ctttttttgg 150  
 ccgtgcacga ggcttgggct gggatgttga aggaggagga cgatgacaca 200  
 gaacgcttgc ccagcaaattg cgaagtgtgt aagctgctga gcacagagct 250  
 acaggcgga ctgagtcgca ccggtcgatc tcgagaggtg ctggagctgg 300  
 ggcaggtgct ggatacaggc aagaggaaga gacacgtgcc ttacagcgtt 350  
 tcagagacaa ggctggaaga ggccttagag aatttatgtg agcggatcct 400  
 ggactatagt gttcacgctg agcgcaaggg ctactgaga tatgccaaagg 450  
 gtcagagtca gaccatggca aactgaaag gcctagtga gaaggggggtg 500  
 aaggtggatc tggggatccc tctggagctt tgggatgagc ccagcgtgga 550  
 ggtcacatac ctcaagaagc agtgtgagac catgttggag gagtttgaag 600  
 acattgtggg agactggtac ttccaccatc aggagcagcc cctacaaaat 650  
 tttctctgtg aaggtcatgt gctcccagct gctgaaactg catgtctaca 700  
 ggaaacttgg actggaaagg agatcacaga tggggaagag aaaacagaag 750  
 gggaggaaga gcaggaggag gaggaggaag aggaggaaga ggaaggggga 800  
 gacaagatga ccaagacagg aagccacccc aaacttgacc gagaagatct 850  
 ttgacccttg cctttgagcc ccaggaggga gaagggatca tggagagccc 900  
 tctaaagcct gcactctccc tgetccacag ctttcagggt gtgtttatga 950  
 gtgactccac ccaagcttgt agctgttctc tccatctaa cctcaggcaa 1000  
 gatcctggtg aaacagcatg acatggcttc tggggtggag ggtgggggtg 1050  
 gaggtcctgc tcctagagat gaactctatc cagcccctta attggcaggt 1100

gtatgtgctg acagtactga aagctttcct ctttaactga tcccaccccc 1150  
 acccaaaagt cagcagtggc actggagctg tgggcttttg ggaagtcact 1200  
 tagctcctta aggtctgttt ttagaccctt ccaaggaaga ggccagaacg 1250  
 gacattctct gcgatctata tacattgcct gtatccagga ggctacacac 1300  
 cagcaaaccg tgaaggagaa tgggacactg ggtcatggcc tggagttgct 1350  
 gataatttag gtgggataga tacttggtct acttaagctc aatgtaaccc 1400  
 agagcccacc atatagtttt ataggtgctc aactttctat atcgctatta 1450  
 aacttttttc tttttttcta 1470

<210> 59

<211> 248

<212> PRT

<213> Homo Sapien

<400> 59

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Pro | Val | Arg | Leu | Gly | Ile | Leu | Leu | Phe | Leu | Phe | Leu | Ala |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |
| Val | His | Glu | Ala | Trp | Ala | Gly | Met | Leu | Lys | Glu | Glu | Asp | Asp | Asp |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |
| Thr | Glu | Arg | Leu | Pro | Ser | Lys | Cys | Glu | Val | Cys | Lys | Leu | Leu | Ser |
|     |     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |
| Thr | Glu | Leu | Gln | Ala | Glu | Leu | Ser | Arg | Thr | Gly | Arg | Ser | Arg | Glu |
|     |     |     |     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |
| Val | Leu | Glu | Leu | Gly | Gln | Val | Leu | Asp | Thr | Gly | Lys | Arg | Lys | Arg |
|     |     |     |     | 65  |     |     |     | 70  |     |     |     |     |     | 75  |
| His | Val | Pro | Tyr | Ser | Val | Ser | Glu | Thr | Arg | Leu | Glu | Glu | Ala | Leu |
|     |     |     |     | 80  |     |     |     | 85  |     |     |     |     |     | 90  |
| Glu | Asn | Leu | Cys | Glu | Arg | Ile | Leu | Asp | Tyr | Ser | Val | His | Ala | Glu |
|     |     |     |     | 95  |     |     |     | 100 |     |     |     |     |     | 105 |
| Arg | Lys | Gly | Ser | Leu | Arg | Tyr | Ala | Lys | Gly | Gln | Ser | Gln | Thr | Met |
|     |     |     |     | 110 |     |     |     | 115 |     |     |     |     |     | 120 |
| Ala | Thr | Leu | Lys | Gly | Leu | Val | Gln | Lys | Gly | Val | Lys | Val | Asp | Leu |
|     |     |     |     | 125 |     |     |     | 130 |     |     |     |     |     | 135 |
| Gly | Ile | Pro | Leu | Glu | Leu | Trp | Asp | Glu | Pro | Ser | Val | Glu | Val | Thr |
|     |     |     |     | 140 |     |     |     | 145 |     |     |     |     |     | 150 |
| Tyr | Leu | Lys | Lys | Gln | Cys | Glu | Thr | Met | Leu | Glu | Glu | Phe | Glu | Asp |
|     |     |     |     | 155 |     |     |     | 160 |     |     |     |     |     | 165 |
| Ile | Val | Gly | Asp | Trp | Tyr | Phe | His | His | Gln | Glu | Gln | Pro | Leu | Gln |
|     |     |     |     | 170 |     |     |     | 175 |     |     |     |     |     | 180 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Phe | Leu | Cys | Glu | Gly | His | Val | Leu | Pro | Ala | Ala | Glu | Thr | Ala |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Cys | Leu | Gln | Glu | Thr | Trp | Thr | Gly | Lys | Glu | Ile | Thr | Asp | Gly | Glu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Glu | Lys | Thr | Glu | Gly | Glu | Glu | Glu | Gln | Glu | Glu | Glu | Glu | Glu | Glu |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Glu | Glu | Glu | Glu | Gly | Gly | Asp | Lys | Met | Thr | Lys | Thr | Gly | Ser | His |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Pro | Lys | Leu | Asp | Arg | Glu | Asp | Leu |     |     |     |     |     |     |     |
|     |     |     |     | 245 |     |     |     |     |     |     |     |     |     |     |

<210> 60  
 <211> 890  
 <212> DNA  
 <213> Homo Sapien

<400> 60  
 aagtacttgt gtccgggtgg tggactggat tagctgcgga gccctggaag 50  
 ctgcctgtcc ttctccctgt gcttaaccag aggtgcccat gggttggaca 100  
 atgaggctgg tcacagcagc actgttactg ggtctcatga tggtggtcac 150  
 tggagacgag gatgagaaca gcccggtgtgc ccatgaggcc ctcttggacg 200  
 aggacaccct cttttgccag ggccttgaag ttttctaccc agagttgggg 250  
 aacattggct gcaaggttgt tcctgattgt aacaactaca gacagaagat 300  
 cacctcctgg atggagccga tagtcaagtt cccggggggc gtggacggcg 350  
 caacctatat cctggtgatg gtggatccag atgcccctag cagagcagaa 400  
 cccagacaga gattctggag acattggctg gtaacagata tcaagggcgc 450  
 cgacctgaag aaagggaaga ttcagggcca ggagttatca gcctaccagg 500  
 ctccctcccc accggcacac agtggcttcc atcgctacca gttctttgtc 550  
 tatcttcagg aaggaaaagt catctctctc cttcccaagg aaaacaaaac 600  
 tcgaggctct tggaaaatgg acagatttct gaaccgcttc cacctgggcg 650  
 aacctgaagc aagcacccag ttcatgaccc agaactacca ggactcacca 700  
 accctccagg ctcccagagg aagggccagc gagcccaagc acaaaaccag 750  
 gcagagatag ctgcctgcta gatagccggc tttgccatcc gggcatgtgg 800  
 ccacactgct caccaccgac gatgtgggta tggaaccccc tctggataca 850  
 gaacccttc ttttccaaat taaaaaaaaa aatcatcaaa 890

<210> 61

<211> 223  
 <212> PRT  
 <213> Homo Sapien

<400> 61

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Trp | Thr | Met | Arg | Leu | Val | Thr | Ala | Ala | Leu | Leu | Leu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Met | Met | Val | Val | Thr | Gly | Asp | Glu | Asp | Glu | Asn | Ser | Pro | Cys |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala | His | Glu | Ala | Leu | Leu | Asp | Glu | Asp | Thr | Leu | Phe | Cys | Gln | Gly |
|     |     |     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Glu | Val | Phe | Tyr | Pro | Glu | Leu | Gly | Asn | Ile | Gly | Cys | Lys | Val |
|     |     |     | 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |
| Val | Pro | Asp | Cys | Asn | Asn | Tyr | Arg | Gln | Lys | Ile | Thr | Ser | Trp | Met |
|     |     |     | 65  |     |     |     |     |     | 70  |     |     |     |     | 75  |
| Glu | Pro | Ile | Val | Lys | Phe | Pro | Gly | Ala | Val | Asp | Gly | Ala | Thr | Tyr |
|     |     |     | 80  |     |     |     |     |     | 85  |     |     |     |     | 90  |
| Ile | Leu | Val | Met | Val | Asp | Pro | Asp | Ala | Pro | Ser | Arg | Ala | Glu | Pro |
|     |     |     | 95  |     |     |     |     |     | 100 |     |     |     |     | 105 |
| Arg | Gln | Arg | Phe | Trp | Arg | His | Trp | Leu | Val | Thr | Asp | Ile | Lys | Gly |
|     |     |     | 110 |     |     |     |     |     | 115 |     |     |     |     | 120 |
| Ala | Asp | Leu | Lys | Lys | Gly | Lys | Ile | Gln | Gly | Gln | Glu | Leu | Ser | Ala |
|     |     |     | 125 |     |     |     |     |     | 130 |     |     |     |     | 135 |
| Tyr | Gln | Ala | Pro | Ser | Pro | Pro | Ala | His | Ser | Gly | Phe | His | Arg | Tyr |
|     |     |     | 140 |     |     |     |     |     | 145 |     |     |     |     | 150 |
| Gln | Phe | Phe | Val | Tyr | Leu | Gln | Glu | Gly | Lys | Val | Ile | Ser | Leu | Leu |
|     |     |     | 155 |     |     |     |     |     | 160 |     |     |     |     | 165 |
| Pro | Lys | Glu | Asn | Lys | Thr | Arg | Gly | Ser | Trp | Lys | Met | Asp | Arg | Phe |
|     |     |     | 170 |     |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Asn | Arg | Phe | His | Leu | Gly | Glu | Pro | Glu | Ala | Ser | Thr | Gln | Phe |
|     |     |     | 185 |     |     |     |     |     | 190 |     |     |     |     | 195 |
| Met | Thr | Gln | Asn | Tyr | Gln | Asp | Ser | Pro | Thr | Leu | Gln | Ala | Pro | Arg |
|     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     | 210 |
| Gly | Arg | Ala | Ser | Glu | Pro | Lys | His | Lys | Thr | Arg | Gln | Arg |     |     |
|     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |     |

<210> 62  
 <211> 1321  
 <212> DNA  
 <213> Homo Sapien

<400> 62

gtcgacccac gcgtccgaag ctgctggagc cagattcag tcccctggac 50

tgtagataaa gaccctttct tgccagggtgc tgagacaacc acactatgag 100  
 aggcactcca ggagacgctg atgggtggagg aagggccgctc tatcaatcaa 150  
 tcaactgttgc tgttatcaca tgcaagtatc cagaggctct tgagcaaggc 200  
 agaggggatc ccattttattt gggaatccag aatccagaaa tgtgttttgta 250  
 ttgtgagaag gttggagaac agcccacatt gcagctaaaa gagcagaaga 300  
 tcatggatct gtatggccaa cccgagcccc tgaaaccctt ccttttctac 350  
 cgtgccaaaga ctggtaggac ctccaccctt gagtctgtgg ccttcccgga 400  
 ctgggttcatt gcctcctcca agagagacca gcccatcatt ctgacttcag 450  
 aacttgggaa gtcatacaac actgcctttg aattaaatat aaatgactga 500  
 actcagccta gaggtggcag cttgggtcttt gtcttaaagt ttctggttcc 550  
 caatgtgttt tcgtctacat tttcttagtg tcattttcac gctgggtgctg 600  
 agacaggagc aaggctgctg ttatcatctc attttataat gaagaagaag 650  
 caattacttc atagcaactg aagaacagga tgtggcctca gaagcaggag 700  
 agctgggtgg tataaggctg tcctctcaag ctgggtgctgt gtaggccaca 750  
 aggcactctgc atgagtgact ttaagactca aagaccaaac actgagcttt 800  
 cttctagggg tgggtatgaa gatgcttcag agctcatgcg cgttaccac 850  
 gatggcatga ctagcacaga gctgatctct gtttctgttt tgctttattc 900  
 cctcttggga tgatatcatc cagtctttat atgttgccaa tatacctcat 950  
 tgtgtgtaat agaaccttct tagcattaag accttgtaaa caaaaataat 1000  
 tcttgggggtg ggtatgaaga tgcttcagag ctcatgcgcg ttaccacga 1050  
 tggcatgact agcacagagc tgatctctgt ttctgttttg ctttattccc 1100  
 tcttgggatg atatcatcca gtctttatat gttgccaata tacctcattg 1150  
 tgtgtaatag aaccttctta gcattaagac cttgtaaaca aaaataattc 1200  
 ttgtgttaag ttaaatcatt tttgtcctaa ttgtaatgtg taatcttaaa 1250  
 gttaaataaa ctttgtgtat ttatataata ataaagctaa aactgatata 1300  
 aaataaagaa agagtaaact g 1321

<210> 63  
 <211> 134  
 <212> PRT  
 <213> Homo Sapien

<400> 63

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Gly | Thr | Pro | Gly | Asp | Ala | Asp | Gly | Gly | Gly | Arg | Ala | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Tyr | Gln | Ser | Ile | Thr | Val | Ala | Val | Ile | Thr | Cys | Lys | Tyr | Pro | Glu |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala | Leu | Glu | Gln | Gly | Arg | Gly | Asp | Pro | Ile | Tyr | Leu | Gly | Ile | Gln |
|     |     |     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |
| Asn | Pro | Glu | Met | Cys | Leu | Tyr | Cys | Glu | Lys | Val | Gly | Glu | Gln | Pro |
|     |     |     | 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |
| Thr | Leu | Gln | Leu | Lys | Glu | Gln | Lys | Ile | Met | Asp | Leu | Tyr | Gly | Gln |
|     |     |     | 65  |     |     |     |     |     | 70  |     |     |     |     | 75  |
| Pro | Glu | Pro | Val | Lys | Pro | Phe | Leu | Phe | Tyr | Arg | Ala | Lys | Thr | Gly |
|     |     |     | 80  |     |     |     |     |     | 85  |     |     |     |     | 90  |
| Arg | Thr | Ser | Thr | Leu | Glu | Ser | Val | Ala | Phe | Pro | Asp | Trp | Phe | Ile |
|     |     |     | 95  |     |     |     |     |     | 100 |     |     |     |     | 105 |
| Ala | Ser | Ser | Lys | Arg | Asp | Gln | Pro | Ile | Ile | Leu | Thr | Ser | Glu | Leu |
|     |     |     | 110 |     |     |     |     |     | 115 |     |     |     |     | 120 |
| Gly | Lys | Ser | Tyr | Asn | Thr | Ala | Phe | Glu | Leu | Asn | Ile | Asn | Asp |     |
|     |     |     | 125 |     |     |     |     |     | 130 |     |     |     |     |     |

<210> 64  
 <211> 999  
 <212> DNA  
 <213> Homo Sapien

<400> 64  
 gcgaggctgc accagcgcct ggcacccatga ggacgcctgg gcctctgccc 50  
 gtgctgctgc tgctcctggc gggagccccc gccgcgcggc ccactccccc 100  
 gacctgctac tcccgcatgc gggccctgag ccaggagatc acccgcgact 150  
 tcaacctcct gcaggtctcg gagccctcgg agccatgtgt gagatacctg 200  
 cccaggctgt acctggacat acacaattac tgtgtgctgg acaagctgcg 250  
 ggactttgtg gcctcgcccc cgtgttgga agtggcccag gtagattcct 300  
 tgaaggacaa agcacggaag ctgtacacca tcatgaactc gttctgcagg 350  
 agagatttgg tattcctggt ggatgactgc aatgccttgg aatacccaat 400  
 cccagtgact acggtcctgc cagatcgta gcgctaagg aactgagacc 450  
 agagaaagaa cccaagagaa ctaaagttat gtcagctacc cagacttaat 500  
 gggccagagc catgaccctc acaggtcttg tgtagttgt atctgaaact 550  
 gttatgtatc tctctacctt ctggaaaaca gggctggtat tcctaccag 600  
 gaacctcctt tgagcataga gttagcaacc atgcttctca ttcccttgac 650

tcatgtcttg ccaggatggg tagatacaca gcatgttgat ttggtcacta 700  
 aaaagaagaa aaggactaac aagcttcact tttatgaaca actattttga 750  
 gaacatgcac aatagtatgt ttttattact ggtttaatgg agtaatggta 800  
 cttttattct ttcttgatag aaacctgctt acatttaacc aagcttctat 850  
 tatgcctttt tctaacacag acttttcttca ctgtctttca tttaaaaaga 900  
 aattaatgct cttaagatat atattttacg tagtgctgac aggaccact 950  
 ctttcattga aaggatgatga aaatcaaata aagaatctct tcacatgga 999

<210> 65  
 <211> 136  
 <212> PRT  
 <213> Homo Sapien

<400> 65  
 Met Arg Thr Pro Gly Pro Leu Pro Val Leu Leu Leu Leu Leu Ala  
 1 5 10 15  
 Gly Ala Pro Ala Ala Arg Pro Thr Pro Pro Thr Cys Tyr Ser Arg  
 20 25 30  
 Met Arg Ala Leu Ser Gln Glu Ile Thr Arg Asp Phe Asn Leu Leu  
 35 40 45  
 Gln Val Ser Glu Pro Ser Glu Pro Cys Val Arg Tyr Leu Pro Arg  
 50 55 60  
 Leu Tyr Leu Asp Ile His Asn Tyr Cys Val Leu Asp Lys Leu Arg  
 65 70 75  
 Asp Phe Val Ala Ser Pro Pro Cys Trp Lys Val Ala Gln Val Asp  
 80 85 90  
 Ser Leu Lys Asp Lys Ala Arg Lys Leu Tyr Thr Ile Met Asn Ser  
 95 100 105  
 Phe Cys Arg Arg Asp Leu Val Phe Leu Leu Asp Asp Cys Asn Ala  
 110 115 120  
 Leu Glu Tyr Pro Ile Pro Val Thr Thr Val Leu Pro Asp Arg Gln  
 125 130 135

Arg

<210> 66  
 <211> 1893  
 <212> DNA  
 <213> Homo Sapien

<400> 66  
 gtctccgcgt cacaggaact tcagcaccca cagggcggac agcgctcccc 50



tctacctgga gacttgactc ccgcgcgccc caaccctgct tatcccttga 100  
ccgtcgagtg tcagagatcc tgcagccgcc cagtcccggc ccctctcccg 150  
ccccacaccc accctcctgg ctcttcctgt ttttactcct ccttttcatt 200  
cataacaaaa gctacagctc caggagccca gcgccgggct gtgaccaag 250  
ccgagcgtgg aagaatgggg ttctcggga ccggcacttg gattctggtg 300  
ttagtgctcc cgattcaagc tttcccaaaa cctggaggaa gccaagacaa 350  
atctctacat aatagagaat taagtgcaga aagaccttg aatgaacaga 400  
ttgctgaagc agaagaagac aagattaaaa aaacatatcc tccagaaaac 450  
aagccaggtc agagcaacta ttcttttgtt gataacttga acctgctaaa 500  
ggcaataaca gaaaaggaaa aaattgagaa agaaagacaa tctataagaa 550  
gctccccact tgataataag ttgaatgtgg aagatgttga ttcaaccaag 600  
aatcgaaaac tgatcgatga ttatgactct actaagagtg gattggatca 650  
taaatttcaa gatgatccag atggtcttca tcaactagac gggactcctt 700  
taaccgctga agacattgtc cataaaatcg ctgccaggat ttatgaagaa 750  
aatgacagag ccgtgtttga caagattgtt tctaaactac ttaatctcgg 800  
ccttatcaca gaaagccaag cacatacact ggaagatgaa gtagcagagg 850  
ttttacaaaa attaatctca aaggaagcca acaattatga ggaggatccc 900  
aataagccca caagctggac tgagaatcag gctggaaaaa taccagagaa 950  
agtgactcca atggcagcaa ttcaagatgg tcttgctaag ggagaaaacg 1000  
atgaaacagt atctaacaca ttaaccttga caaatggctt ggaaaggaga 1050  
actaaaacct acagtgaaga caactttgag gaactccaat atttcccaaa 1100  
tttctatgcg ctactgaaaa gtattgattc agaaaaagaa gcaaaagaga 1150  
aagaaacact gattactatc atgaaaacac tgattgactt tgtgaagatg 1200  
atggtgaaat atggaacaat atctccagaa gaaggtgttt cctaccttga 1250  
aaacttggat gaaatgattg ctcttcagac caaaaacaag ctagaaaaaa 1300  
atgctactga caatataagc aagcttttcc cagcaccatc agagaagagt 1350  
catgaagaaa cagacagtac caaggaagaa gcagctaaga tggaaaagga 1400  
atatggaagc ttgaaggatt ccacaaaaga tgataactcc aaccaggag 1450  
gaaagacaga tgaacccaaa ggaaaaacag aagcctatth ggaagccatc 1500

agaaaaaata ttgaatgggt gaagaaacat gacaaaaagg gaaataaaga 1550  
 agattatgac ctttcaaaga tgagagactt catcaataaa caagctgatg 1600  
 cttatgtgga gaaaggcatc cttgacaagg aagaagccga ggccatcaag 1650  
 cgcattttata gcagcctgta aaaatggcaa aagatccagg agtctttcaa 1700  
 ctgttttcaga aaacataata tagcttaaaa cacttctaata tctgtgatta 1750  
 aaatttttttg acccaaggggt tattagaaag tgctgaattt acagtagtta 1800  
 acctttttaca agtgggttaaa acatagcttt cttcccgttaa aaactatctg 1850  
 aaagtaaagt tgtatgtaag ctgaaaaaaaa aaaaaaaaaa aaa 1893

<210> 67  
 <211> 468  
 <212> PRT  
 <213> Homo Sapien

<400> 67  
 Met Gly Phe Leu Gly Thr Gly Thr Trp Ile Leu Val Leu Val Leu  
 1 5 10 15  
 Pro Ile Gln Ala Phe Pro Lys Pro Gly Gly Ser Gln Asp Lys Ser  
 20 25 30  
 Leu His Asn Arg Glu Leu Ser Ala Glu Arg Pro Leu Asn Glu Gln  
 35 40 45  
 Ile Ala Glu Ala Glu Glu Asp Lys Ile Lys Lys Thr Tyr Pro Pro  
 50 55 60  
 Glu Asn Lys Pro Gly Gln Ser Asn Tyr Ser Phe Val Asp Asn Leu  
 65 70 75  
 Asn Leu Leu Lys Ala Ile Thr Glu Lys Glu Lys Ile Glu Lys Glu  
 80 85 90  
 Arg Gln Ser Ile Arg Ser Ser Pro Leu Asp Asn Lys Leu Asn Val  
 95 100 105  
 Glu Asp Val Asp Ser Thr Lys Asn Arg Lys Leu Ile Asp Asp Tyr  
 110 115 120  
 Asp Ser Thr Lys Ser Gly Leu Asp His Lys Phe Gln Asp Asp Pro  
 125 130 135  
 Asp Gly Leu His Gln Leu Asp Gly Thr Pro Leu Thr Ala Glu Asp  
 140 145 150  
 Ile Val His Lys Ile Ala Ala Arg Ile Tyr Glu Glu Asn Asp Arg  
 155 160 165  
 Ala Val Phe Asp Lys Ile Val Ser Lys Leu Leu Asn Leu Gly Leu  
 170 175 180

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Thr | Glu | Ser | Gln | Ala | His | Thr | Leu | Glu | Asp | Glu | Val | Ala | Glu | 185 | 190 | 195 |
| Val | Leu | Gln | Lys | Leu | Ile | Ser | Lys | Glu | Ala | Asn | Asn | Tyr | Glu | Glu | 200 | 205 | 210 |
| Asp | Pro | Asn | Lys | Pro | Thr | Ser | Trp | Thr | Glu | Asn | Gln | Ala | Gly | Lys | 215 | 220 | 225 |
| Ile | Pro | Glu | Lys | Val | Thr | Pro | Met | Ala | Ala | Ile | Gln | Asp | Gly | Leu | 230 | 235 | 240 |
| Ala | Lys | Gly | Glu | Asn | Asp | Glu | Thr | Val | Ser | Asn | Thr | Leu | Thr | Leu | 245 | 250 | 255 |
| Thr | Asn | Gly | Leu | Glu | Arg | Arg | Thr | Lys | Thr | Tyr | Ser | Glu | Asp | Asn | 260 | 265 | 270 |
| Phe | Glu | Glu | Leu | Gln | Tyr | Phe | Pro | Asn | Phe | Tyr | Ala | Leu | Leu | Lys | 275 | 280 | 285 |
| Ser | Ile | Asp | Ser | Glu | Lys | Glu | Ala | Lys | Glu | Lys | Glu | Thr | Leu | Ile | 290 | 295 | 300 |
| Thr | Ile | Met | Lys | Thr | Leu | Ile | Asp | Phe | Val | Lys | Met | Met | Val | Lys | 305 | 310 | 315 |
| Tyr | Gly | Thr | Ile | Ser | Pro | Glu | Glu | Gly | Val | Ser | Tyr | Leu | Glu | Asn | 320 | 325 | 330 |
| Leu | Asp | Glu | Met | Ile | Ala | Leu | Gln | Thr | Lys | Asn | Lys | Leu | Glu | Lys | 335 | 340 | 345 |
| Asn | Ala | Thr | Asp | Asn | Ile | Ser | Lys | Leu | Phe | Pro | Ala | Pro | Ser | Glu | 350 | 355 | 360 |
| Lys | Ser | His | Glu | Glu | Thr | Asp | Ser | Thr | Lys | Glu | Glu | Ala | Ala | Lys | 365 | 370 | 375 |
| Met | Glu | Lys | Glu | Tyr | Gly | Ser | Leu | Lys | Asp | Ser | Thr | Lys | Asp | Asp | 380 | 385 | 390 |
| Asn | Ser | Asn | Pro | Gly | Gly | Lys | Thr | Asp | Glu | Pro | Lys | Gly | Lys | Thr | 395 | 400 | 405 |
| Glu | Ala | Tyr | Leu | Glu | Ala | Ile | Arg | Lys | Asn | Ile | Glu | Trp | Leu | Lys | 410 | 415 | 420 |
| Lys | His | Asp | Lys | Lys | Gly | Asn | Lys | Glu | Asp | Tyr | Asp | Leu | Ser | Lys | 425 | 430 | 435 |
| Met | Arg | Asp | Phe | Ile | Asn | Lys | Gln | Ala | Asp | Ala | Tyr | Val | Glu | Lys | 440 | 445 | 450 |
| Gly | Ile | Leu | Asp | Lys | Glu | Glu | Ala | Glu | Ala | Ile | Lys | Arg | Ile | Tyr | 455 | 460 | 465 |
| Ser | Ser | Leu |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 68  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 68  
cgtcacagga acttcagcac cc 22

<210> 69  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 69  
gtcttggctt cctccaggtt tgg 23

<210> 70  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 70  
ggacagcgct cccctctacc tggagacttg actcccgc 38

<210> 71  
<211> 2379  
<212> DNA  
<213> Homo Sapien

<400> 71  
gttgctccgg cggcgctcgg ggagggagcc agcagcctag ggcctaggcc 50  
cgggccacca tggcgctgcc tccaggccca gccgccctcc ggcacacact 100  
gctgctcctg ccagcccttc tgagctcagg ttggggggag ttggagccac 150  
aaatagatgg tcagacctgg gctgagcggg cacttcggga gaatgaacgc 200  
cacgccttca cctgccgggt ggcagggggg cctggcaccc ccagattggc 250  
ctggtatctg gatggacagc tgcaggaggc cagcacctca agactgctga 300  
gcgtgggagg ggaggccttc tctggaggca ccagcacctt cactgtcact 350  
gcccacgagg ccagcatga gctcaactgc tctctgcagg accccagaag 400  
tggccgatca gccaacgcct ctgtcatcct taatgtgcaa ttcaagccag 450

agattgccca agtcggcgcc aagtaccagg aagctcaggg cccaggcctc 500  
 ctggttgtcc tgtttgcctt ggtgcgtgcc aaccgcgagg ccaatgtcac 550  
 ctggatcgac caggatgggc cagtgactgt caacacctct gacttcctgg 600  
 tgctggatgc gcagaactac ccctggctca ccaaccacac ggtgcagctg 650  
 cagctccgca gcctggcaca caacctctcg gtggtggcca ccaatgacgt 700  
 ggggtgtcacc agtgcgtcgc ttccagcccc agggccctcc cggcaccat 750  
 ctctgatatc aagtgactcc aacaacctaa aactcaacaa cgtgcgcctg 800  
 ccacggggaga acatgtccct ccggtccaac cttcagctca atgacctcac 850  
 tccagattcc agagcagtga aaccagcaga ccggcagatg gctcagaaca 900  
 acagccggcc agagcttctg gacccggagc ccggcggcct cctcaccagc 950  
 caaggtttca tccgcctccc agtgctgggc tatatctatc gagtgtccag 1000  
 cgtgagcagt gatgagatct ggctctgagc cgagggcgag acaggagtat 1050  
 tctcttggcc tctggacacc ctcccattcc tccaaggcat cctctaccta 1100  
 gctaggtcac caacgtgaag aagttatgcc actgccactt ttgcttgccc 1150  
 tcctggctgg ggtgccctcc atgtcatgca cgtgatgcat ttcactgggc 1200  
 tgtaaccgcg aggggcacag gtatctttgg caaggctacc agttggacgt 1250  
 aagccctca tgctgactca ggggtggccc tgcatgtgat gactgggccc 1300  
 ttccagaggg agctctttgg ccaggggtgt tcagatgtca tccagcatcc 1350  
 aagtgtggca tggcctgctg tataccccac ccagttactc cacagcacct 1400  
 tgtacagtag gcatgggggc gtgcctgtgt gggggacagg gagggccctg 1450  
 catggatttt cctccttctt atgctatgta gccttggttc ctcaggtaaa 1500  
 atttaggacc ctgctagctg tgcagaacct aattgccctt tgcacagaaa 1550  
 ccaaccctg acccagcggg accggccaag cacaaacgtc ctttttgctg 1600  
 cacacgtctc tgcccttcac ttcttctctt ctgtcc<sup>o</sup>ccac ctctcttgg 1650  
 gaattctagg ttacacgttg gaccttctct actacttcac tgggcactag 1700  
 acttttctat tggcctgtgc catcgcccag tattagcaca agttaggagg 1750  
 gaagaggcag gcgatgagtc tagtagcacc caggacggct tgtagctatg 1800  
 catcattttc ctacggcggt agcactttaa gcacatcccc taggggaggg 1850  
 ggtgagtgag gggcccagag ccctctttgt ggcttcccc cgtttggcct 1900

```

tctgggattc actgtgagtg tcctgagctc tcgggggttg tggtttttct 1950
ctcagcatgt ctcctccacc acgggacccc agccctgacc aacccatggt 2000
tgcctcatca gcaggaaggt gcccttcctg gaggatggtc gccacaggca 2050
cataattcaa cagtgtggaa gcttttagggg aacatggaga aagaaggaga 2100
ccacataccc caaagtgacc taagaacact ttaaaaagca acatgtaaat 2150
gattggaaat taatatagta cagaatatat ttttcccttg ttgagatctt 2200
cttttgtaat gtttttcatg ttactgccta gggcgggtgct gagcacacag 2250
caagtttaat aaacttgact gaattcattht aaaaaaaaaa aaaaaaaaaa 2300
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2350
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2379

```

```

<210> 72
<211> 322
<212> PRT
<213> Homo Sapien

```

```

<400> 72
Met Ala Leu Pro Pro Gly Pro Ala Ala Leu Arg His Thr Leu Leu
  1                      5                      10                      15
Leu Leu Pro Ala Leu Leu Ser Ser Gly Trp Gly Glu Leu Glu Pro
                20                      25                      30
Gln Ile Asp Gly Gln Thr Trp Ala Glu Arg Ala Leu Arg Glu Asn
                35                      40                      45
Glu Arg His Ala Phe Thr Cys Arg Val Ala Gly Gly Pro Gly Thr
                50                      55                      60
Pro Arg Leu Ala Trp Tyr Leu Asp Gly Gln Leu Gln Glu Ala Ser
                65                      70                      75
Thr Ser Arg Leu Leu Ser Val Gly Gly Glu Ala Phe Ser Gly Gly
                80                      85                      90
Thr Ser Thr Phe Thr Val Thr Ala His Arg Ala Gln His Glu Leu
                95                      100                      105
Asn Cys Ser Leu Gln Asp Pro Arg Ser Gly Arg Ser Ala Asn Ala
                110                      115                      120
Ser Val Ile Leu Asn Val Gln Phe Lys Pro Glu Ile Ala Gln Val
                125                      130                      135
Gly Ala Lys Tyr Gln Glu Ala Gln Gly Pro Gly Leu Leu Val Val
                140                      145                      150
Leu Phe Ala Leu Val Arg Ala Asn Pro Pro Ala Asn Val Thr Trp
                155                      160                      165

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Asp | Gln | Asp | Gly | Pro | Val | Thr | Val | Asn | Thr | Ser | Asp | Phe | Leu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Val | Leu | Asp | Ala | Gln | Asn | Tyr | Pro | Trp | Leu | Thr | Asn | His | Thr | Val |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Gln | Leu | Gln | Leu | Arg | Ser | Leu | Ala | His | Asn | Leu | Ser | Val | Val | Ala |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Thr | Asn | Asp | Val | Gly | Val | Thr | Ser | Ala | Ser | Leu | Pro | Ala | Pro | Gly |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Pro | Ser | Arg | His | Pro | Ser | Leu | Ile | Ser | Ser | Asp | Ser | Asn | Asn | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Lys | Leu | Asn | Asn | Val | Arg | Leu | Pro | Arg | Glu | Asn | Met | Ser | Leu | Pro |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Ser | Asn | Leu | Gln | Leu | Asn | Asp | Leu | Thr | Pro | Asp | Ser | Arg | Ala | Val |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Lys | Pro | Ala | Asp | Arg | Gln | Met | Ala | Gln | Asn | Asn | Ser | Arg | Pro | Glu |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Leu | Leu | Asp | Pro | Glu | Pro | Gly | Gly | Leu | Leu | Thr | Ser | Gln | Gly | Phe |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Ile | Arg | Leu | Pro | Val | Leu | Gly | Tyr | Ile | Tyr | Arg | Val | Ser | Ser | Val |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ser | Ser | Asp | Glu | Ile | Trp | Leu |     |     |     |     |     |     |     |     |
|     |     |     |     | 320 |     |     |     |     |     |     |     |     |     |     |

<210> 73  
 <211> 843  
 <212> DNA  
 <213> Homo Sapien

<400> 73  
 cggggacgga agcggcccct gggcccagagg ggctggagcc gggccggggc 50  
 gatgtggagc gcgggccgcg gcggggctgc ctggccggtg ctgttggggc 100  
 tgctgctggc gctgttagtg ccgggcggtg gtgccgcaa gaccggtgcg 150  
 gagctcgtga cctgcgggtc ggtgctgaag ctgctcaata cgcaccaccg 200  
 cgtgcggctg cactcgcacg acatcaaata cgatccggc agcggccagc 250  
 aatcggtgac cggcgtagag gcgtcggacg acgccaatag ctactggcgg 300  
 atccgcggcg gctcggaggg cgggtgcccg cgcggggtccc cggtgcgctg 350  
 cgggcaggcg gtgaggctca cgcatgtgct tacgggcaag aacctgcaca 400  
 cgcaccactt cccgtcgccg ctgtccaaca accaggaggt gaggccttt 450  
 gggaagacg gcgagggcga cgacctggac ctatggacag tgcgctgctc 500

tggacagcac tgggagcgtg aggctgctgt gcgcttccag catgtgggca 550  
 cctctgtgtt cctgtcagtc acgggtgagc agtatggaag ccccatccgt 600  
 gggcagcatg aggtccacgg catgcccagt gccaacacgc acaatacgtg 650  
 gaaggccatg gaaggcatct tcatcaagcc tagtgtggag ccctctgcag 700  
 gtcacgatga actctgagtg tgtggatgga tgggtggatg gaggggtggca 750  
 ggtggggcgt ctgcagggcc actcttggca gagactttgg gttttagagg 800  
 gtcctcaagt gcctttgtga ttaaagaatg ttggtctatg aaa 843

<210> 74

<211> 221

<212> PRT

<213> Homo Sapien

<400> 74

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Trp | Ser | Ala | Gly | Arg | Gly | Gly | Ala | Ala | Trp | Pro | Val | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |
| Gly | Leu | Leu | Leu | Ala | Leu | Leu | Val | Pro | Gly | Gly | Gly | Ala | Ala | Lys |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Thr | Gly | Ala | Glu | Leu | Val | Thr | Cys | Gly | Ser | Val | Leu | Lys | Leu | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Asn | Thr | His | His | Arg | Val | Arg | Leu | His | Ser | His | Asp | Ile | Lys | Tyr |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Ser | Gly | Ser | Gly | Gln | Gln | Ser | Val | Thr | Gly | Val | Glu | Ala | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Asp | Asp | Ala | Asn | Ser | Tyr | Trp | Arg | Ile | Arg | Gly | Gly | Ser | Glu | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Gly | Cys | Pro | Arg | Gly | Ser | Pro | Val | Arg | Cys | Gly | Gln | Ala | Val | Arg |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Leu | Thr | His | Val | Leu | Thr | Gly | Lys | Asn | Leu | His | Thr | His | His | Phe |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Pro | Ser | Pro | Leu | Ser | Asn | Asn | Gln | Glu | Val | Ser | Ala | Phe | Gly | Glu |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Asp | Gly | Glu | Gly | Asp | Asp | Leu | Asp | Leu | Trp | Thr | Val | Arg | Cys | Ser |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Gly | Gln | His | Trp | Glu | Arg | Glu | Ala | Ala | Val | Arg | Phe | Gln | His | Val |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Gly | Thr | Ser | Val | Phe | Leu | Ser | Val | Thr | Gly | Glu | Gln | Tyr | Gly | Ser |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Pro | Ile | Arg | Gly | Gln | His | Glu | Val | His | Gly | Met | Pro | Ser | Ala | Asn |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |



Thr His Asn Thr Trp Lys Ala Met Glu Gly Ile Phe Ile Lys Pro  
 200 205 210

Ser Val Glu Pro Ser Ala Gly His Asp Glu Leu  
 215 220

<210> 75  
 <211> 1049  
 <212> DNA  
 <213> Homo Sapien

<400> 75  
 gttgctatgt tgcccaggct ggtcttgaag tgccttgacc tcctaaagtg 50  
 ttggaaccac agacgtgagc cactccaccc agcctaaaac ttcatcttct 100  
 ttggatgaga tgaacacttt taacaagaga acaggactct atataaatcg 150  
 ctgtgggctc accacctcta aggaggagca ctgactgaag acagaaaaat 200  
 tgatgaactg aagaagacat ggtccattat gccttacaaa cttacacagt 250  
 gctttgggaa ttccaaagta ctcagtggag agaggtgttt caggagccgt 300  
 agagccagat cgtcatcatg tctgcattgt ggctgctgct gggcctcctt 350  
 gccctgatgg acttgtctga aagcagcaac tggggatgct atggaaacat 400  
 ccaaagcctg gacaccctg gagcatcttg tgggattgga agacgtcacg 450  
 gcctgaacta ctgtggagtt cgtgcttctg aaaggctggc tgaaatagac 500  
 atgccatacc tcctgaaata tcaacccatg atgcaaacca ttggccaaaa 550  
 gtactgcatg gatcctgccg tgatcgctgg tgtcttgtcc aggaagtctc 600  
 ccggtgacaa aattctggtc aacatgggcg ataggactag catggtgcag 650  
 gaccctggct ctcaagctcc cacatcctgg attagtgagt ctcaggtttc 700  
 ccagacaact gaagttctga ctactagaat caaagaaatc cagaggaggt 750  
 ttccaacctg gaccctgac cagtacctga gaggtggact ctgtgcctac 800  
 agtgggggtg ctggctatgt ccgaagcagc caggacctga gctgtgactt 850  
 ctgcaatgat gtccttgac gagccaagta cctcaagaga catggcttct 900  
 aacatctcag atgaaacca agaccatgat cacatatgca gcctcaaagt 950  
 ttacacagat aaaactagcc aagggcacct gtaactggga atctgagttt 1000  
 gacctaaaag tcattaaaat aacatgaatc ccattaaaaa aaaaaaaaaa 1049

<210> 76  
 <211> 194  
 <212> PRT  
 <213> Homo Sapien

<400> 76

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Ala | Leu | Trp | Leu | Leu | Leu | Gly | Leu | Leu | Ala | Leu | Met | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Ser | Glu | Ser | Ser | Asn | Trp | Gly | Cys | Tyr | Gly | Asn | Ile | Gln | Ser |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Leu | Asp | Thr | Pro | Gly | Ala | Ser | Cys | Gly | Ile | Gly | Arg | Arg | His | Gly |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Asn | Tyr | Cys | Gly | Val | Arg | Ala | Ser | Glu | Arg | Leu | Ala | Glu | Ile |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Asp | Met | Pro | Tyr | Leu | Leu | Lys | Tyr | Gln | Pro | Met | Met | Gln | Thr | Ile |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Gly | Gln | Lys | Tyr | Cys | Met | Asp | Pro | Ala | Val | Ile | Ala | Gly | Val | Leu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Arg | Lys | Ser | Pro | Gly | Asp | Lys | Ile | Leu | Val | Asn | Met | Gly | Asp |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Arg | Thr | Ser | Met | Val | Gln | Asp | Pro | Gly | Ser | Gln | Ala | Pro | Thr | Ser |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Trp | Ile | Ser | Glu | Ser | Gln | Val | Ser | Gln | Thr | Thr | Glu | Val | Leu | Thr |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Thr | Arg | Ile | Lys | Glu | Ile | Gln | Arg | Arg | Phe | Pro | Thr | Trp | Thr | Pro |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Asp | Gln | Tyr | Leu | Arg | Gly | Gly | Leu | Cys | Ala | Tyr | Ser | Gly | Gly | Ala |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Gly | Tyr | Val | Arg | Ser | Ser | Gln | Asp | Leu | Ser | Cys | Asp | Phe | Cys | Asn |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Asp | Val | Leu | Ala | Arg | Ala | Lys | Tyr | Leu | Lys | Arg | His | Gly | Phe |     |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     |     |

<210> 77

<211> 899

<212> DNA

<213> Homo Sapien

<400> 77

ttgaaaatct actctatcag ctgctgtggt tgccaccatt ctcaggaccc 50  
tcgccatgaa agcccttatg ctgctcacc tgtctgttct gctctgctgg 100  
gtctcagctg acattcgctg tcaactcctgc tacaagggtcc ctgtgctggg 150  
ctgtgtggac cggcagtcct gccgcctgga gccaggacag caatgcctga 200  
caacacatgc ataccttggt aagatgtggg ttttctccaa tctgcgctgt 250  
ggcacaccag aagagccctg tcaggaggcc ttcaaccaaa ccaaccgcaa 300

gctgggtctg acatataaca ccacctgctg caacaaggac aactgcaaca 350  
gcgcaggacc ccggcccact ccagccctgg gccttgtctt ccttacctcc 400  
ttggctggcc ttggcctctg gctgctgcac tgagactcat tccattggct 450  
ccccctctc ccacctgcct tggcctgagc ctctctccct gtgtctctgt 500  
atcccctggc tttacagaat cgtctctccc tagctcccat ttctttaatt 550  
aacactggtt ccgagtgggc tcctcatcca tccttcccac ctcacaccct 600  
tcactctcct ttttctgggt cccttcccac ttccttccag gacctccatt 650  
ggctcctaga agggctcccc actttgcttc ctatactctg ctgtccccta 700  
cttgaggagg gattgggatc tgggcctgaa atggggcttc tgtgttgtcc 750  
ccagtgaagg ctcccacaag gacctgatga cctcactgta cagagctgac 800  
tccccaaacc caggctccca tatgtacccc atccccata ctcacctctt 850  
tccattttga gtaataaatg tctgagtctg gaaaaaaaaa aaaaaaaaaa 899

<210> 78

<211> 125

<212> PRT

<213> Homo Sapien

<400> 78

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Ala | Leu | Met | Leu | Leu | Thr | Leu | Ser | Val | Leu | Leu | Cys | Trp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Ala | Asp | Ile | Arg | Cys | His | Ser | Cys | Tyr | Lys | Val | Pro | Val |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gly | Cys | Val | Asp | Arg | Gln | Ser | Cys | Arg | Leu | Glu | Pro | Gly | Gln |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Cys | Leu | Thr | Thr | His | Ala | Tyr | Leu | Gly | Lys | Met | Trp | Val | Phe |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asn | Leu | Arg | Cys | Gly | Thr | Pro | Glu | Glu | Pro | Cys | Gln | Glu | Ala |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Asn | Gln | Thr | Asn | Arg | Lys | Leu | Gly | Leu | Thr | Tyr | Asn | Thr | Thr |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Cys | Asn | Lys | Asp | Asn | Cys | Asn | Ser | Ala | Gly | Pro | Arg | Pro | Thr |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ala | Leu | Gly | Leu | Val | Phe | Leu | Thr | Ser | Leu | Ala | Gly | Leu | Gly |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| Leu | Trp | Leu | Leu | His |
|     |     |     |     | 125 |

<210> 79

<211> 1977  
<212> DNA  
<213> Homo Sapien

<400> 79

acgggcccga gcggcagtg cgtagggttg gcgcacggat ccgttgcggc 50  
tgcagctctg cagtcggggc gttccttcgc cgccgccagg ggtagcgggtg 100  
tagctgcgca gcgtcgcgcg cgctaccgca cccaggttcg gcccgtaggc 150  
gtctggcagc ccggcgccat cttcatcgag cgccatggcc gcagcctgcg 200  
ggccgggagc ggccgggtac tgcttgctcc tcggcttgca tttgtttctg 250  
ctgaccgcgg gccctgccct gggctggaac gaccctgaca gaatgttgct 300  
gcgggatgta aaagctctta ccctccacta tgaccgctat accacctccc 350  
gcaggctgga tcccatccca cagttgaaat gtgttgaggg cacagctggg 400  
tgtgattctt ataccccaaa agtcatacag tgtcagaaca aaggctggga 450  
tgggtatgat gtacagtggg aatgtaagac ggacttagat attgcataca 500  
aatttggaaa aactgtggtg agctgtgaag gctatgagtc ctctgaagac 550  
cagtatgtac taagagggtc ttgtggcttg gagtataatt tagattatac 600  
agaacttggc ctgcagaaac tgaaggagtc tggaaagcag cacggctttg 650  
cctctttctc tgattattat tataagtggg cctcggcgga ttcctgtaac 700  
atgagtggat tgattaccat cgtgggtactc cttgggatcg cctttgtagt 750  
ctataagctg ttcctgagtg acgggcagta ttctcctcca ccgtactctg 800  
agtatcctcc attttcccac cgttaccaga gattcaccaa ctcagcagga 850  
cctcctcccc caggctttaa gtctgagttc acaggaccac agaatactgg 900  
ccatgggtgca acttctggtt ttggcagtg c ttttacagga caacaaggat 950  
atgaaaattc aggaccaggg ttctggacag gcttggaac tgggtggaata 1000  
ctaggatatt tgtttggcag caatagagcg gcaacaccct tctcagactc 1050  
gtggtactac ccgtcctatc ctccctccta ccctggcacg tggaataggg 1100  
cttactcacc cttcatgga ggctcgggca gctattcggg atgttcaaac 1150  
tcagacacga aaaccagaac tgcacagga tatggtggta ccaggagacg 1200  
ataaagtaga aagttggagt caaacactgg atgcagaaat tttggatttt 1250  
tcatcacttt ctcttttagaa aaaaagtact acctgttaac aattgggaaa 1300  
aggggatatt caaaagttct gtggtgttat gtccagtgta gctttttgta 1350

ttctattatt tgaggctaaa agttgatgtg tgacaaaata cttatgtgtt 1400  
 gtatgtcagt gtaacatgca gatgtatatt gcagtttttg aaagtgatca 1450  
 ttactgtgga atgctaaaaa tacattaatt tctaaaacct gtgatgccct 1500  
 aagaagcatt aagaatgaag gtgttgtact aatagaaact aagtacagaa 1550  
 aatttcagtt ttaggtgggt gtagctgatg agttattacc tcatagagac 1600  
 tataatattc tatttggtat tatattatth gatgtttgct gttcttcaaa 1650  
 catttaaate aagctttgga ctaattatgc taatttgtga gttctgatca 1700  
 cttttgagct ctgaagcttt gaatcattca gtgggtggaga tggccttctg 1750  
 gtaactgaat attaccttct gtaggaaaag gtggaaaata agcatctaga 1800  
 aggttgttgt gaatgactct gtgctggcaa aatgcttga aacctctata 1850  
 tttctttcgt tcataagagg taaaggtcaa atttttcaac aaaagtcttt 1900  
 taataacaaa agcatgcagt tctctgtgaa atctcaaata ttgttgtaat 1950  
 agtctgtttc aatcttaaaa agaata 1977

<210> 80

<211> 339

<212> PRT

<213> Homo Sapien

<400> 80

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Ala | Cys | Gly | Pro | Gly | Ala | Ala | Gly | Tyr | Cys | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Gly | Leu | His | Leu | Phe | Leu | Leu | Thr | Ala | Gly | Pro | Ala | Leu | Gly |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |
| Trp | Asn | Asp | Pro | Asp | Arg | Met | Leu | Leu | Arg | Asp | Val | Lys | Ala | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Thr | Leu | His | Tyr | Asp | Arg | Tyr | Thr | Thr | Ser | Arg | Arg | Leu | Asp | Pro |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ile | Pro | Gln | Leu | Lys | Cys | Val | Gly | Gly | Thr | Ala | Gly | Cys | Asp | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Tyr | Thr | Pro | Lys | Val | Ile | Gln | Cys | Gln | Asn | Lys | Gly | Trp | Asp | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Tyr | Asp | Val | Gln | Trp | Glu | Cys | Lys | Thr | Asp | Leu | Asp | Ile | Ala | Tyr |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Lys | Phe | Gly | Lys | Thr | Val | Val | Ser | Cys | Glu | Gly | Tyr | Glu | Ser | Ser |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Glu | Asp | Gln | Tyr | Val | Leu | Arg | Gly | Ser | Cys | Gly | Leu | Glu | Tyr | Asn |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asp | Tyr | Thr | Glu | Leu | Gly | Leu | Gln | Lys | Leu | Lys | Glu | Ser | Gly |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Lys | Gln | His | Gly | Phe | Ala | Ser | Phe | Ser | Asp | Tyr | Tyr | Tyr | Lys | Trp |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ser | Ser | Ala | Asp | Ser | Cys | Asn | Met | Ser | Gly | Leu | Ile | Thr | Ile | Val |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Val | Leu | Leu | Gly | Ile | Ala | Phe | Val | Val | Tyr | Lys | Leu | Phe | Leu | Ser |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Asp | Gly | Gln | Tyr | Ser | Pro | Pro | Pro | Tyr | Ser | Glu | Tyr | Pro | Pro | Phe |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ser | His | Arg | Tyr | Gln | Arg | Phe | Thr | Asn | Ser | Ala | Gly | Pro | Pro | Pro |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Pro | Gly | Phe | Lys | Ser | Glu | Phe | Thr | Gly | Pro | Gln | Asn | Thr | Gly | His |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Ala | Thr | Ser | Gly | Phe | Gly | Ser | Ala | Phe | Thr | Gly | Gln | Gln | Gly |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Tyr | Glu | Asn | Ser | Gly | Pro | Gly | Phe | Trp | Thr | Gly | Leu | Gly | Thr | Gly |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Gly | Ile | Leu | Gly | Tyr | Leu | Phe | Gly | Ser | Asn | Arg | Ala | Ala | Thr | Pro |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Phe | Ser | Asp | Ser | Trp | Tyr | Tyr | Pro | Ser | Tyr | Pro | Pro | Ser | Tyr | Pro |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Gly | Thr | Trp | Asn | Arg | Ala | Tyr | Ser | Pro | Leu | His | Gly | Gly | Ser | Gly |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ser | Tyr | Ser | Val | Cys | Ser | Asn | Ser | Asp | Thr | Lys | Thr | Arg | Thr | Ala |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Ser | Gly | Tyr | Gly | Gly | Thr | Arg | Arg | Arg |     |     |     |     |     |     |
|     |     |     |     | 335 |     |     |     |     |     |     |     |     |     |     |